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Commercial and Financial Aspects of the Gas Industry.

[Address of MR. GEORGE B. CORTELYOU, delivered on the occasion of the celebration of the Centenary of the Use of Gas as an Illuminant, Franklin Institute, Philadelphia, Pa., April 19, 1912.]

Mr. Chairman, Ladies and Gentlemen: At the outset of my remarks I feel that I should say a word in appreciation of the initiative and energy that have made possible this series of lectures; and I welcome the opportunity to join with those who recognize the public spirit of the individuals and associations who have contributed to the success of the celebration.

Historical.—About 100 years ago, two of the leading nations of Europe brought forth, independently of each other, an invention which was destined to become a factor mightier than almost any other for the promotion of human comfort, for advancing civilization, and for giving employment to great industrial armies.

On this occasion, therefore, we celebrate the birth of a great industry; and it is fitting that we recall the names of those patient pioneers whose struggles are matters of history, and whose subtle creation illumines the civilized world. Among the names which we honor to-day are those of Van Helmont, Clayton, Murdock, Lebon, Clegg and Winsor, but it is generally conceded that to William Murdock belongs the credit of being the first to develop the gas industry along practical lighting lines.

From Murdock's own account we learn that, in 1798, he removed from Cornwall, where he had conducted important experiments, lighting his own house (1792), to Boulton, Watt & Company's works for the manufacture of steam engines at the Soho Foundry, near Birmingham, where he constructed an apparatus on a large scale which was applied to the lighting of the principal building. His experiments were continued with some interruption until the year 1802, when a public display of the light was made in the illumination of the manufactory at Soho, on the occasion of the celebration of the "Peace of Amiens." A contemporary writer states: "This remarkable illumination was the first public display (of gas lighting) in this country and at the time produced a very strong impression upon the inhabitants of the town. The illumination of Soho works on this occasion was one of extraordinary splendour. The whole front of that extensive range of buildings was ornamented with a great variety of devices, that admirably displayed many of the varied forms of which gas light was susceptible."

Murdock's efforts were stimulated by news of the activities of M. Lebon, of Paris, along similar lines. This is related in a letter addressed to Soho from which Dr. Henry published the following extract: "I don't know exactly at what time the first trials were made or published in France. The first notice we received of them here was in a letter from a friend at Paris, dated November 8, 1801, in which he desired me to inform Mr. Murdock that a person had lighted up his house and gardens with the gas obtained from wood and coal and had in contemplation to light up the city of Paris."

The testimony of James Watt, Jr. (son of the great inventor), who was associated with Matthew Boulton in the firm of Boulton & Watt, proprietors of the Soho Works, shows, to use his own words, that "At the period when the peace took place, which, I believe was in the spring of 1802, public display of these lights was made in the illumination of Mr. Boulton's manufactory, which then took place. In 1803 we erected an apparatus for the purpose of giving a light to a part of our own works and, till 1804, we continued making experiments on the gas produced, and also on the different coals out of which the gas was to be made; on the manner of making the retorts best adapted to the purpose; upon the materials and construction of the pipes; upon the size and construction of the gasometers; upon the economy of the different sorts of burners, etc. The experiments were very long and attended with a great deal of expense. We were out of pocket £4,000 or £5,000, and are so at this moment for the experiments and machinery."

In Hunt's "History of the Introduction of Gas Lighting," we are told that: "It was the fear of being anticipated by Lebon that quickened the firm's pace and finally overcame their reluctance to embark in this new venture. Without Lebon, therefore, Murdock's invention might have remained indefinitely in the background; but, it may with equal justice be said that without Murdock, Lebon's ideal could not have been realized. There is no evidence that either Murdoch or Lebon aimed at anything beyond a number of separate and independent installations; but Lebon's idea of 'lighting a part of Paris with it' seems to have fired the imagination of his follower, Winsor, in whose hands a public supply of gas lighting became a reality, although this was only made practicable by the achievements of Murdock and the development of engineering and industrial art."

Lebon was granted a patent, for a term of 15 years from September 28, 1799, as shown by the records in the Patent Office at Paris.

Frederick A. Winsor, contemporary of Murdock and Lebon, is described as a man of little experience, but possessed of an extremely sanguine temperament and an unbounded imagination, combined with determination and ingenuity. He was the first to advocate publicly the distribution of gas from a central source, and was the promoter of the first chartered gas light company. The London press spoke of him most disparagingly and described his scheme of gas lighting as

"wild, absurd and extravagent in its conception, and fraught with the greatest danger in its execution," and alluded to Winsor's proposal for "enlightening the inhabitants of London" as "fire of wind." Winsor was himself responsible for much of this opposition by reason of his extravagant statements as to profits (as much as 1,000 per cent. being promised) of the venture. Indeed a perusal of his flowery prospectus would give pause even to the modern advertising man, and the circus poster in its palmiest days hardly approached its flights. For instance. in one of his pamphlets, after claiming such utilities as "tanning skins," "smoking bacon and hams," and "fixing color in dyeing," he says, "As to illuminations they may be carried on to the utmost extent of beauty and variegated fancy, by this docile flame, which will play in all forms, submit to instant changes, ascend in columns to the clouds, descend in showers from the trees, walls, etc., arise from the water, and even in the same pipe with a playing fountain. The constant varying of the flame in rooms and gardens between flaming pyramids, festoons, garlands, roses, flambeaux, etc., afford the spectator a most delightful sight, cherish the soul and create good humor by uniting convenience, utility and pleasure."

In 1803 and 1804 Winsor publicly exhibited his system of illumination by coal gas at the Lyceum Theater, London. He showed the manner of conveying the gas to different parts of the house, and, by the use of various kinds of burners, he was enabled to display something of that variety of form which may be given to the flame. His exhibitions proved that the intensity of coal gas rendered it less liable to be extinguished by strong and sudden gusts of wind, and he also showed that if properly managed the burning of it would not produce smoke or throw out sparks such as often fly from the burning wicks of lamps or candles, a circumstance which rendered gas a desirable kind of light, as being less dangerous in its use than either of the other forms. Afterwards Winsor moved his exhibitions to Pall Mall where, early in 1807, he lighted up a part of one side of a street, which was the first instance of this kind of light being applied to such a purpose, and to him, therefore, belongs the credit of initiating the system of public gas lighting.

As the projector of the National Light and Heat Company, Winsor is stated to have raised nearly £50,000 by subscription for this purpose, all of which, however, was squandered upon commercially unproductive experiments.

In 1809 Winsor projected a new Light and Heat Company, and applied to Parliament for an act to incorporate it. This is an important fact in the history of the gas industry, for it was the foundation of the London and Westminster Chartered Gas Light and Coke Company. The capital proposed to be raised at this time was £200,000. The persons who applied for the act had many difficulties to combat, arising both from interest and prejudice. Their projects were represented as visionary and the execution of them fraught with considerable danger. On this occasion they were opposed by Mr. Murdock on the ground of his priority of right to the discovery. The application terminated unsuccessfully, partly because of the unfavorable impressions produced by Winsor's extravagant claims. Murdock's opposition to Winsor resulted in Parliament protecting the appliance manufacturers against possible competition by the lighting company.

In 1810 another application was made to Parliament by the same parties, and though it met with some opposition an act was passed authorizing His Majesty to grant them a charter within 3 years from the time of passing the act. Thus Winsor's plan of a National Light and Coke Company was in part accomplished by the formation of a local gas light and coke company. The incorporation of this company, which occurred in April 1812, the centenary of which we celebrate, was an important step in the direction of placing the new industry upon a basis that promised its permanent establishment and increased the probability of its ultimate success. Experience had already proved that the resources of the individual were inadequate to cope successfully with undertakings of such magnitude and cost. From calculations, as well as from actual surveys that were made, it appeared that the expense of laying down pipes for the city of Westminster alone would be £150,000, without including any other expense.

In 1813 Westminster Bridge was lighted with gas. About this time the City of London Gas Light Company was established, and two others were projected for the metropolis, one in Southwark, the other in the eastern district. From the time of the formation of the Chartered Gas Light and Coke Company, to the year 1813, experiments had been carried on by Messrs. Winsor, Accum and Hargraves, at which time the Company was almost on the point of dissolution.

Samuel Clegg was engaged as Engineer of the Company, he having been educated as an Engineer in Boulton & Watt's foundry, at which time his attention was first directed to the practicability of distilling gas from coal, when assisting in the illumination of the Soho manufactory.

In 1815 Clegg invented and patented the gas meter and governor. The first meter consisted of 2 large bladders, filled alternately with gas, and contained in 2 cases weighted to a certain pressure, the valves being sealed with quicksilver. Though credit for the original invention and construction of the gas meter belongs to Clegg, it has been very materially improved by Samuel Crosley and John Malam. It is to the introduction of this simple instrument, now in universal use, that a great deal of the success of gas lighting must be attributed.

Thus Mr. Clegg seems to have been the pioneer in many of the important inventions connected with gas lighting. Besides the gas meter he introduced the cylindrical gasholder and an automatic pressure regulating device. It is he also who was chiefly responsible for the success of the original Chartered Gas Light and Coke Company, and he was the first man to commercialize city gas lighting on a large scale.

In 1816 gas had become very common in the City of London.

Paris was first lighted by gas in 1820.

In 1833 the French National Gas Company was projected for lighting Boulogne-Sur-Mer. The capital of £10,000 being too small, the Company was taken over by the European Gas Company and capitalized for £200,000 for the purpose of lighting other European towns.

Gas was used at Havre, Caen and Amiens, in 1835; at Nantes and Rouen in 1846. The plants for all of these gas works were sent from England.

Before the second London Company was chartered our own City of Baltimore granted a charter to the first Company to be regularly organized for the purpose of exploiting gas for the illumination of streets and cities in America. Gas chronology tells us that Baltimore was not only the first city in this country to be lighted with gas, but that it was also the first city in which gas meters were manufactured in the United States, and gives the name of Samuel Hill as the meter maker.

A brief historical summary of gas development in the United States is given in the U. S. Census Reports for 1910, from which the following is adduced:

The history of the gas industry in this country dates from 1806, at which time David Melville, of Newport, R. I., lighted his premises by means of coal gas which he had manufactured thereon. This took place 9 years after the experiments in England. The apparatus as used by Melville was necessarily crude, but underwent improvements from time to time until, in 1813, he secured a patent and later used used gas for the lighting of a cotton mill in Watertown, Mass. Gas was also used at about this time in a mill near Providence, R. I., and was employed in 1817 as an illuminant in a lighthouse. The growth of the industry was at first slow; but, with the advances in the details of the construction and operation of gas plants, the improvement and development of special tools and appliances, and the increasing knowledge gained by experience of the laws of physics involved, there came a much more rapid growth. As early as 1816 a company was chartered in Baltimore, Md., followed (1821) by the formation of a company in Boston, Mass. New York City adopted gas lighting in 1823, and several years later companies were formed in Brooklyn, N. Y., and Bristol, R. I. New Orleans adopted gas about 1835, twenty-nine years after Melville introduced the new illuminant in this country.

A proposition to light Philadelphia with gas was made in 1803, and a similar one was made in 1817, but both offers were rejected. Repeated efforts were made thereafter looking to the lighting of the city with gas, but it was not until March 21, 1835, that an ordinance was passed providing for the construction of the works. The plant was completed February 8, 1836.

Objections Raised to the Introduction of Gas.—Like most inventions, gas lighting was not at first taken seriously. It seemed to the American and European world of 1800 to be on a par with the Laputan philosopher's scheme for making sunshine out of cucumbers. People were afraid of this "burning air," as it was called, and could not be convinced that fire or explosion would not be the inevitable result of its general use. When that daring New Yorker, Samuel Leggett, first lighted his house, No. 7 Cherry street, with gas, people stood at a respectful distance and looked at it much as they might have looked at the witches dancing in "Kirk Alloway."

In Europe the prejudice against gas lighting at the time of its introduction wes equally strong. Napoleon ridiculed it, and said. "C'est une grande folie". In 1803, Sir Walter Scott wrote to a friend: "There is a madman proposing to light London with—what do you think? Why, with smoke!" Yet Scott himself had Abbotsford piped for gas not many years later. Clegg gives an account of the horrors of the lamplighters when they first beheld the burning gas and how he was obliged to light the lamps himself for some time on account of the fears of the people. Even such men as Sir Humphry Davy and Sir Joseph Banks were unable for many years after this to overcome the prejudice which existed in their own minds concerning it and they thought the scheme a wild and dangerous one.

Another concrete instance of this prejudice can be cited right here in Philadelphia. On November 28, 1833, a petition, signed by several hundred of the excellent people of that city, was addressed to "The Honorable the Select and Common Councils of the City of Philadelphia," protesting against the use of gas, in the following terms:

"Gentlemen.—The subscribers beg leave respectfully to remonstrate against the plan now in agitation for Lighting the City with Gas, as they consider it a most inexpedient, offensive, and dangerous mode of lighting. In saying this they are fully sustained by the accounts of Explosions, Loss of Life, and great destruction of property, where this mode of lighting has been adopted.

"We consider Gas to be an article as Ignitable as Gunpowder, and nearly as fatal in its effects; as regards the immense destruction of property, we believe the vast number of fires in New York, and other cities, may be in a great measure ascribed to this mode of lighting; the leakage of pipes and carelessness of stopping off the Gas, furnish almost daily instances of its destructive effects. And when we consider that this Powerful and Destructive Agent must necessarily be often left to the care of youth, domestics and careless people, we only wonder that the consequences have not been more Appalling. It is also an uncertain light, sometimes suddenly disappearing and leaving streets and houses in total darkness.

"The waters of the Delaware and Schuylkill, now considered the most pure and salubrious in the world, as many long voyages have fully tested, must soon, we fear, experience the deterioration which has reduced the Water of the Thames to the present impure and unhealthy state, for no reservoir will be able to contain the immense fetid drains from such an establishment, and very soon the rivers must be their receptacle, to the destruction of the immense Shoals of Shad, Herring, and other fish with which they abound; the same cause must produce like effects. Salmon, smelts and other fish, formerly caught in vast quantities in the Thames, have nearly all disappeared; the constant digging up of the streets, the circumstance of the gas pipes which at the intersection of each square must come in contact with the water pipes, are difficulties and evils which we would anxiously avoid.

"In conclusion we earnestly solicit that the lighting of our city with oil may be continued.

"And your petitioners, etc., etc."

If the signers of this petition could appear upon the scene to-day and witness the splendid achievements of gas under the management of your great Philadelphia Company, I am sure they would be in favor of the "recall", at least in so far as it applied to their petition.

But the opposition to the use of gas should not surprise us. It seems a fundamental trait of human nature to oppose, for a time, everything that is new. Coal had the same prejudice to overcome. In the year 1306 the use of coal in the place of dry wood and charcoal by brewers, dyers and other artificers employing great fires, was prohibited by proclamation at London. It was held that the products of its combustion, smell and smoke were prejudicial to health and hurtful to vegetation. Its use was made a capital offense, and we are told that a man was actually executed for burning coal within the metropolis. What a boon such a law would be to the gas companies today!

It does not take long, however, for human nature to get used to novelty, but remarkable it certainly is, considering the difficulties of communication and the meager resources of a new country, that America was but little behind Europe in the use of gas.

The history of the pioneer gas companies of this country shows that in addition to, and to a considerable extent because of, the prejudice that existed against the new and supposedly dangerous illuminant, it was a very difficult matter to secure the necessary capital to erect and operate the plants, and it was some time before the industry was established on a commercially sound and profitable basis.

Gas as an illuminant has had several competitors which at the time of their appearance in the field threatened its existence. In the early days of the industry the gas manufactured had an illuminating value of about 15 to 17 candle power. Compared with the light of candles or of the crude whale oil then in use it was considered a wonderful illuminant. This superiority was soon threatened, however, by the introduction of kerosene and improved oil lamps, the general use of which interfered seriously with the rapid increase of the sale of gas.

These conditions would have greatly retarded the growth of the industry had not the problem been solved by Tessie du Motay and Lowe, the former a Frenchman, the latter an American, who, independently of each other, were carrying on experiments which were to result in the introduction of the so-called water gas. The investigations of both du Motay and Lowe were conducted in this country, so that the development of the water gas industry is purely American. The first plant using the Lowe process was erected at Phœnixville, Pa., in 1873. At present, although the exact figures are not available, the census reports indicate that the amount of water gas sold for public use is in the neighborhood of 75 per cent. of the entire quantity of gas sold.

The advent of electricity for lighting purposes did not, as some might suppose, check the progress of gas. On the contrary, as has been the history where improved methods of lighting have developed, both kinds of lighting profited by the increased efficiency; and since the introduction of the incandescent mantle, notwithstanding that the resultant yield of illumination per cubic foot consumed was practically quadrupled, the reduction of gas output did not follow; but, on the contrary, vastly increased. The development of high-pressure incandescent lighting systems, such as are in vogue in the leading European cities, is another movement which bids fair to keep the gas industry to the fore.

Production and Prices.—The trend of prices for gas has been steadily downward from the beginning. In New York City, for instance, the price in 1826 was $10 per 1,000 cu. ft.; in 1846, $6; in 1866, $3.50; in 1880, $1.25; in 1897, $1.20; in 1898, $1.15; in 1899, $1.10; in 1900, $1.05; in 1901, $1; in 1906, 80 cents, the present rate. These reductions have been made possible by various economies in production, and particularly by the more extended utilization of by-products and by promoting the use of gas for domestic and industrial purposes.

Neither gas nor electric light has been a factor in the increased cost of living of which we hear so much. The Massachusetts Commission on Cost of Living reported that the average price for gas in that State in 1890 was $1.46 per 1,000 cubic feet, and in 1909, 91.4 cents, a decrease of 36.4 per cent. in the period. The Commission also reported an increase in the prices of twelve staple commodities from 1897 to 1910 of 51.7 per cent. During the same period wages also underwent a marked increase. If the experience of Massachusetts may be taken as fairly representative of the country at large, it shows that, in a period of steadily advancing prices, both for commodities and for labor, the public has had the advantage of a steadily diminishing price of gas for all purposes.

* *Gas Sales in U. S. in Cubic Feet:—Quantity and Price Per Cubic Feet*

	M Cubic Feet	Total M Cu. Ft.	Average price per M Cu. Ft.	Amount	Total Amount
433 Companies reporting in 1898:					
Sold for Illuminating.....	15,955,149		$1.188	$18,955,149	
Sold for Fuel...	2,476,051		1.029	2,549,181	
		18,431,200			$21,502,325
552 Companies reporting in 1908 (Oil and Water Gas):					
Sold for illuminating.....	76,804,546		.92	70,294,158	
Sold for fuel...	26,542,951	103,347,497	.98	26,049,063	96,343,221
506 Companies reporting in 1908 (Coal Gas)					
Sold for Illuminating.....	32,485,571		.73	23,599,930	
Sold for Fuel...	21,076,242	53,561,813	.65	13,627,971	37,227,901
Total Coal and Water Gas Sold		156,909,310			$133,571,122

*Complied from report of Dept. of the Interior, U. S. Geological Survey (1902 and 1908) E. W. Parker.

The output of gas has been continually on the increase, notwithstanding the competition from electricity. From the subjoined table it appears that in 1898 the companies reporting showed total sales of 18,431,200,000 cubic feet, for which $21,502,325 was received, an average price of about $1.17 per 1,000. Ten years later, 1908, the companies reporting showed total sales of 156,909,310,000 cubic feet, for which $133,571,122 was received, an average price of 85 cents per 1,000.

Gas Sales in U. S. in Cubic Feet:—Quantity and Price per Cubic Feet.

The growth in gas output, as compared with the growth in population, shows that the gas sales in large cities grow almost twice as fast as the population. For instance, in four great boroughs of New York City, the 1890 census and 1910 census compared, show an increase in population of 90.6 per cent. in the 20 years, while the increase in gas sales, in the 17 years from 1893 to 1910, was 164.6 per cent. or, relatively per year, about 5 per cent. for population and 9.67 per cent for gas.

COMPARATIVE STATISTICS—FOUR BOROUGHS OF NEW YORK CITY.

	Population:		
1890:	Manhattan	1,441,216	
	Bronx	88,908	
	Brooklyn	838,547	
	Queens	87,050	
			2,455,721
1910:	Manhattan	2,331,542	
	Bronx	430,980	
	Brooklyn	1,634,351	
	Queens	284,041	4,680,914
	Gain in 20 years (4 Boroughs)—		2,225,193 = 90.6 per cent.
	Gas Output:	M cu. ft.	M cu. ft.
1893:	Manhattan & Bronx	11,343,000	
	Brooklyn & Queens	3,439,000	14,792,000
1910:	Manhattan & Bronx	27,217,105	
	Brooklyn & Queens	11,900,000	39,117,105
	Gain in 17 years		24,335,105 = 164.6 per cent.

Population in four boroughs 4,680,914.

Sales in four boroughs 39,117,105,000 cubic feet, 8.350 cubic feet per capita per annum.

Gas Securities.—Gas has unquestionably for many years been a staple commodity, and its growing field of usefulness, in industrial work as well as for cooking, heating and other domestic purposes, has given gas securities a standing and stability hardly approached by any other class of investment. As has been shown, its ratio in increased output far exceeds the ratio of growth of population. For instance, the United States Census shows an increase in the decade, from 1900 to 1910, of about 21 per cent. In about ⅓ this time—that is, from 1905 to 1908—the sales of gas increased from 117,866,000,000 cubic feet to 156,909,000,000 cubic feet, an increase of 39,043,000,000 cubic feet, or 33 per cent. in 3 years. This would indicate an approximate increase of 100 per cent. in the decade, or 5 times the ratio of increase given for the population, from which we may conclude that gas securities are destined to maintain their high place as desirable investments. It is claimed that no other class of bonds shows such a small percentage of defaults as gas securities. Quoting from a recent article in one of the financial journals we have the following:

"Gas bonds have a first class record for safety; they are usually secured by a mortgage on all the property rights and franchises of the company issuing it. The condition and value of the property are passed upon by competent gas and mechanical engineers before the bonds are issued.

"The bonds are issued only with the approval of a trust company, which is the trustee, after the trust companies have decided that the bonds may be issued in accordance with the terms of the mortgage and trust deed. A gas company operates under the franchise or license of a city, and usually only one company serves one community. It is a 'necessity' and the residents of the community use gas for cooking and lighting with practically the same certainty that they pay taxes or use the utilities furnished by the municipality itself. The business is operated on a broad foundation, relying on a small profit from many customers rather than a large profit from a few."

A study of the gross and net earnings of lighting companies shows that the effect of periods of commercial depression such as were experienced in 1907 and 1908 is slight as compared with the effect upon the earnings of general industrials. The variation between the two is very marked for such periods, the earnings of lighting companies showing a material gain, while those of general industrials show a decided falling off.

A tabulation covering 3 years for 61 prominent cities in the United States, all of which have well established sources of electrical supply, shows an increase in gas consumption from 1899 to 1902 of 31 per cent. In its widening field for industrial purposes, two powerful factors work for its development; the first of which is the fact that it requires no space for storage on the users' premises, secondly, it is smokeless and eliminates the troublesome factors encountered in almost all other fuels—the handling of the fuel itself, incidental refuse, ashes, and the like.

In view, therefore, of the position of the gas industry, its continued growth and the variety of purposes to which its services may be put, it is fair to predict that, properly operated and with constant provision for invention and improvement, the business will steadily increase.

Some Agencies for Promoting the Sale of Gas.—No discussion of the subject that has been assigned me in this series would be complete without a reference to the work of the National Commercial Gas Association, which forms a most important connecting link between the producer of gas and the user. It is conceded that a material factor in reducing the cost of gas production is increasing the output.

It is, of course, of vital importance that the product of the plant shall be of the required quality and that its manufacture and distribution shall be at the minimum cost consistent with quality requirements. This is certainly worthy of the best thought and effort of the technical man, and this work is likely to make such a demand upon his time as to preclude the possibility of his devoting any considerable attention to the commercial problems connected with the industry.

Salesmanship has become a science, and interchange of ideas and the discussion of ways and means for selling the engineers' product, make the importance of commercial gas associations loom very large in the gas world of to-day, as it is mainly through the development and extension of this arm of the industry that the problem of enlarging the field of usefulness of gas must be solved.

It is with us as with other industries. If we are to have the highest efficiency it must be through specialization. I believe the money of the gas company is well spent when it develops specialists in the selling line, and this brings to mind the fact that a close observation should be kept over the office man to see that those who deal with the public are sufficiently well informed and have the capacity to supplement thoroughly the salesman's work and to deal with the public in a satisfactory manner.

The commercial gas men have inaugurated aggressive selling campaigns, have instituted schools of salesmanship and have brought together the manufacturer, seller and user of gas appliances at their conventions, an important feature of which is the exhibition work demonstration of the latest and best gas-using devices. I am informed that a Commercial Gas Association has been formed in London similar to that in this country.

I am also a firm believer in the value to lighting companies of newspaper publicity; that is, going direct to the public through the advertising columns of the daily papers, telling in a plain, straightforward way of our product and our service, explaining the things which to the trained gas man may seem rather elementary, but which to the average man are more or less of a mystery. I know of nothing else that is more promotive of good relations between the gas company and the public than a frank declaration of the principles and policies of the company, as a public service corporation, made without reservation and thoroughly lived up to. Following the establishment in this way of a broad foundation of confidence, the company may advertise special appliances or particular features of its service, of the more strictly "business-getting" sort, with the certainty that the returns will amply justify the expenditure.

But, even to-day, a man ushered into the lighting world faces a field filled with skeptics. In the minds of many there is an inherent feeling of bias against the lighting man, primarily perhaps by reason of the fact that the average individual has no conception of the commodity we sell, its manufacture, the immensity of the time, money, energy and skill required to build up a gas lighting business; and this feeling of distrust is augmented by the fact that the commodity is of so intangible a nature that the buyer of it has no visual knowledge of its coming into his possession as a commodity; to the average man, *selling gas* is a thing apart from *selling light*. The commercial proposition of selling our commodity is further handicapped in the operation of selling as compared with other products which may be shown by the seller. It lacks attractiveness in display, in fact has none in itself, cannot be basketed and bundled up and carried away by the user who has chosen his purchase for its attractive appear-

ance, has seen it measured by the yard or bushel, or weighed by the pound and taken in the hand and carried to the house. The gas man has also inherited a deep seated antipathy of the user of his product by reason of the uncommercial methods of many of his predecessors in the business. Dealing as we do with all classes, all nationalities, all grades of people, and with those who to a great extent commenced doing business with us with this inherited prejudice, we are at once put upon the defensive. In dealing with the commercial proposition we must make a large portion of our work the uprooting of this prejudice, and this does not demand so much of our engineers and gas makers as it does of our commercial department men, those who meet the public and who are large factors in our service. And this word *scrvice* should show up large before the employee of any public utility corporation. The shortcomings of a supply as to pressure, candle power efficiency, and other essentials, are apt to be the matter of a moment, and when remedied in a gracious manner leave no rankling; but the shortcomings which are evident in poor service, brought about by inattention, neglect, or slipshod methods, are not so easily effaced from the consumer's mind. So, I say, this word *service* should be writ large in the mind of every worker for a public utility corporation. Some of our forbears did not appreciate this end of the business as vital to the commercial success of our industry, but we are getting away from old-fashioned methods and we feel that we have made great strides in this direction in the last few years.

When one reflects upon the truism that "One man on the block makes public opinion," and that there is a large probability of there being at least one unreasonable individual living within the area of a city block, it is not strange, in view of the fact that the satisfied gas consumer does not go to the trouble of announcing his satisfaction from the housetop, that is, not to the extent of disturbing his neighbors or keeping them awake with his joyous ebullitions, that the gas man is on the defensive a very considerable part of the business day. And this is in part because the gas man has allowed an air of mystery to surround his business. He has not given enough time and attention to educational work amongst his patrons—has not tried to explain the workings of that mysterious black, tin box in the cellar, of which the average consumer stands in dread and to whose ear the little clicking noise of its mechanism is so ominous. Happily we are to-day on the road to enlightening our customers by giving to our employees a knowledge of these common things of the business, of which, up to a comparatively recent time, they were wofully ignorant.

Importance of Light to the Growth of Cities.—As a factor in the growth of cities it is generally conceded that the lighting company is a positive force for the general good. The importance of its work in providing the public with more and better light is appreciated by all who are conected with the development of municipalities and particularly of suburban districts. The value of light to a municipality, from the purely commercial point of view, is becoming more and more recognized, as is evidenced by the agitation among merchants the country over for additional street and store illumination. These tradesmen know well the value of illumination, both in the matter of window display and in the general publicity it attracts to the lighted district and to the city as a whole. Light is the world's best policeman, for crime instinctively seeks the shadows and the dark corners. I believe that many of our American cities could find no better way of co-operating with the efficient police bodies they have than by thoroughly illuminating the communities to the very limit of municipal control.

In "King's Treatise" we are given this interesting information concerning the early days of gas lighting:

"The police officers from Worship Street and other places gave evidence of the great utility of gas lighting in preventing robberies, and they also mentioned an instance where perpetration of this crime had been apprehended by its aid. Also that three-fifths of the street oil lamps were extinguished before midnight, and that the thieves would borrow ladders from lamp lighters for the purpose of committing robberies." This was brought out in connection with an application made in London, in 1816, by the Chartered Gas Light and Coke Company for an increase in capital.

The Modern Gas Company in its Relation to the Public and the Municipality.—As a necessity; as a convenience; as a promoter of trade; and as a source of good or ill-will as between the company and the community—the last named largely in proportion to the degree with which the company's affairs are conducted with business sagacity and common sense it is a public service corporation. Its rights and the rights of the consumer must be safeguarded if both are to realize beneficial results. It is not a one-sided proposition; one falls unless the other is supported. They are inter-related; they should be friends, not enemies. It is a mischievous interpretation of their relations that groups all the wrongs on one side and all the rights on the other.

To repeat before such a representative body as this all the arguments for the company and for the consumer is not my purpose, nor is it necessary at such a time. It is sufficient to say that the relation of the company to the municipality should be characterized by integrity and efficiency of management and fair and impartial treatment of all who do business with it. In turn, when the public is fairly and efficiently served, that is, with the best service at the lowest rates compatible with a just estimate of their respective relations, the municipality should support and encourage the company. As I have said upon another occasion, the public is less concerned with the precise rate it pays than it is with having thoroughly efficient service. If the company is honestly conducted, and its affairs are given that degree of publicity which is proper and is the public's due, it does not begrudge to the company adequate returns, nor will it yield to the screamings of the demagogue or the self-seeker when he misrepresents the facts or encourages unjust attacks. On their side the companies must keep out of politics, and the mystery of management must become less of an obsession with those who have important undertakings of this character entrusted to their hands.

Of course all this presupposes a full recognition of the rights of employees. No company will have permanent success, or deserve to have it, unless those whose labor has so vitally to do with the enterprise are regarded as an integral part of it. Adequate wages, reasonable hours, generous treatment all along the line, with a system of management that encourages to the highest possible degree the spirit of the individual worker, are all their due and are recognized by the enlightened corporation.

If one thing more than another is a menace to industrial progress, I believe it is the untenable position assumed by some extremists who would limit the return allowed to such corporations as those which are of the public utility class to a rate so low that it either barely equals the legal rate of interest, or, taking into account the varying factors that must be considered in the case of each company, a rate that is practically but a fraction above confiscation. To induce original investment and development, to insure progress after establishment, to safeguard both the company and the community, a return, not merely theoretically but actually fair and liberal, must be permitted if the normal laws of trade are still in effect, and we believe that they are.

It should be remembered that when franchises were granted to public utility companies they were granted with the idea that a service absolutely essential to the growth of the community was to be provided, and it must also be remembered that in many cases those who obtained these privileges or franchises faced a serious risk in making their investment, that there was no assurance that an adequate return would be forthcoming for the money and energy expended in the building up of the service.

A factor which the unthinking man should have brought to his notice, when the supposed enormous profits accruing to lighting companies are discussed, is the ratio between investment and gross income. Investigations show that the annual gas sales of many of the companies do not exceed $15 for each $100 of investment. It must not be inferred from this that these companies make $15 per year on every $100 investment, but that their actual sales each year amount to about 1/7 of the money invested. This would indicate an investment of $7 for each 1,000 feet of annual sales at $1 per 1,000 approximately. In other lines of business it is expected to turn over the capital once, twice or three times a year, but here is a business in which millions are invested in which the capital is turned over only once in about 7 years.

It has come to be well-nigh axiomatic in the gas industry that each company must be considered on its merits, that hardship and injustice result when one company is expected to meet all the requirements of the business under the same restrictions as every other. Engineering difficulties, extent of territory, character of population, maximum demand, and a number of other considerations must in each instance be given fair and proportionate bearing upon the entire problem. But we cannot expect all of the desirable factors to which I have alluded to be fully developed at once; substantial and permanent progress in any industry, in any line of human endeavor, is usually of slow growth, but we can work towards them with the certainty that the material returns will be gratifying, and that we shall be contributing, if only in a slight degree, to the establishment of efficiency and equity and justice in our commercial transactions.

Franchises.—An official of one of the largest and most active of our American companies, dealing in and having to do with the management of public utilities, Mr. Arthur S. Huey, quite recently gave utterance to some suggestions on the subject of franchises that will bear frequent repetition, and I am presuming upon his courtesy in embodying them in this paper. They were contributed to a well-known publica-

tion a few months ago and admirably voice the sentiments of progressive managers. Said he:

"The principal obligations of both parties to a franchise should be—

On the part of the Utility Company:

1st. Rendering good, adequate, and continuous service.

2nd. Fair and reasonable rate schedules.

3rd. No discrimination among consumers of the same class, or between classes of customers for like service.

4th. Extension of service into all populated sections of the municipality and suburbs.

5th. Earnest endeavor to market the greatest possible volume of service.

6th. Adoption of approved inventions and developments in machinery and apparatus.

7th. Sound financial management.

8th. A high standard of physical maintenance.

9th. Public spirited attitude in all matters concerning the general welfare and advancement of the community.

10th. Broad and liberal business administration.

11th. Keeping faith with the people in all agreements, promises and announcements.

12th. Strict obedience to law and no participation in politics.

On the part of the public:

1st. The same decree of confidence, encouragement and respect that one business man accords to another, than any citizen expects from his neighbor.

2nd. Willingness to permit a fair profit on the capital, energy, ability and risks embodied in the undertaking, to permit a profit greater than mere interest which could be obtained without effort or hazard.

3rd. Disregard of attacks by popularity seeking agitators.

4th. Willingness to recognize and reward improvements in service.

5th. Recognition of the fact that the operation of utilities differs fundamentally from merchandizing or manufacturing.

6th. Reasonableness in demanding large capital outlay for improvements not strictly necessary to the rendering of adequate service, such as placing wires underground in cities of small or medium size.

7th. To make prompt payment of bills, because the company cannot render the service demanded if its only source of income is retarded.

8th. Protection against direct competition. All authorities agree that public utilities can be conducted with greatest benefit to the public as controlled monopolies.

9th. Careful consideration of legislation, municipal, state and national, which would hamper and curtail the development of utilities.

10th. Recognition of the fact, that, starting from a given base line, which varies in different localities, reductions in rates can be secured without financial loss only by increasing the volume of service sold.

11th. Recognition of the fact that no utility company can well serve a municipality if it is not in prosperous condition, and able to secure the investment of new capital on favorable terms.

12th. Treatment of all questions affecting public utilities in a fair minded way, looking upon them as business questions without regard to political considerations.

Municipal and Private Ownership.—Public utilities in the United States, in their establishment, development, and successful operation, have resulted almost wholly from private initiative and private capital. There are probably not more than 25 municipally owned and operated gas plants in this country.

As has been well stated, by a Committee of the National Civic Federation reporting on this subject, under a system of municipally controlled utilities it may be expected that:

"Operating costs will be, as they have been, materially increased by the demand for preferment and for employment of men whose services are not actually needed. The salaries being fixed by a council dependent upon public suffrage, makes it possible that there be no limit to the number of positions to be created and no control over the remuneration established for them.

"The rule of municipally owned plants is to cut rates to a point below cost of production, make no allowance for depreciation, and often no interest is charged off against the investment.

"Expensive extensions are made to favored firms, and when the time comes for renewals and repairs, the taxpayer will be asked to appropriate funds from the treasury or stand sponsor for a bond issue.

"Economy of operation and advantageous selling are the great factors that must determine the success of any lighting enterprise."

The operations of municipally controlled lighting plants, are largely confined to street and municipal building lighting, and do not as a rule furnish the citizens as individuals. Consequently they cannot be compared with the operations of a company supplying individual dwellers in a municipality; but where we have an opportunity of making comparisons of somewhat similar lines of operation the results are certainly not unfavorable to the private companies. The report calls attention to "The danger here in the United States of turning over these public utilities to the present government of some of our cities. Some, we know, are well governed, and the situation on the whole seems to be improving, but they are not up to the government of British cities. We found in England and Scotland a high type of municipal government, the result of many years of struggle and improvement. Business men seem to take a pride in serving as city councillors or aldermen, and the government of such cities as Glasgow, Manchester, Birmingham and others includes many of the best citizens of the city. These conditions are distinctly favorable to municipal operation. * * *

"However, there seems to be an idea with many people that the mere taking by the city of all its public utilities for municipal operation will at once result in ideal municipal government through the very necessity of putting honest and competent citizens in charge. While an increase in the number and importance of municipal functions may have a tendency to induce men of a higher type to become public officials, we do not believe that this, of itself, will accomplish municipal reforms. We are unable to recommend municipal ownership as a political panacea."

Competition vs. Monopolistic Control of Public Utilities.—Quoting from the Wisconsin Railroad Commissions:

"Duplication of such plants is a waste of capital, whenever the services can be adequately furnished by one plant only. It necessarily means that interest and maintenance must be earned on a much greater, if not twice as great, an investment, and that the actual cost of operation is likely to be relatively higher. Competition in this service, therefore, usually means a bitter struggle and low rates, until one of the contestants is forced out of the field, when rates are raised to the old level if not above it, or to a combination or understanding of some sort between them which also ultimately results in higher rates. In this way it often happens that the means which were thought to be the preventive of onerous conditions become the very agents through which such conditions are imposed. In fact, active and continuous competition between public utility corporations furnishing the same service to the same locality seems to be out of the question. This has been shown by experience. Such competition is also contrary to the very nature of things. Two distinct and separate corporations are not likely to remain separate very long after it becomes clear that the services rendered by both can be more cheaply and more effectively furnished by only one of them."

The Public Service Act of New York was enacted with the expressed intent that no more capital be invested than is required efficiently to supply the desired service, and it, therefore, not only restrains the issuance of stocks and bonds, but for the same reason also restrains the operations of new companies "unless necessary or convenient for the public service." In order to produce the most favorable economic conditions in the operation of utilities it is intended to prevent the economic waste which is inseparable from needless duplication of capital, and in justice to existing corporations it is clearly the duty of the public service commission to protect them from destructive competition which would or might jeopardize the interests which have promoted the existing service by depriving them of a just return upon their invested capital, and prevent them from giving efficient service by so impairing their earnings as to make efficiency impracticable.

Regulation by Commission.—If the question of rates is to be determined, in any degree, by a public body, it is a safe proposition to advance that a public service commission, if rightly constituted, would be far better able to pass upon such an important matter than a legislature. With facilities which would be available by a commission a more intelligent understanding could be had of conditions which should govern in such matters. The process of finding out by qualified experts through long and exhaustive research is not what would be at the command of a legislative body dealing with a voluminous public business in short sessions. Such a commission which has gained the confidence of the public and the lighting company is better able, through the investigation of its experts, to cope with this intricate subject than a body which, as a body, has no particular local interest in such a matter as gas rates.

In the larger communities, competitive control of the gas industry has given place largely to monopolistic control, and this tendency received a great impetus in the establishment of State commissions to regulate and supervise various features of the business. In certain lines of business regulated monopoly appears to be here to stay, and this is especially true of this industry. It is well that this is so, for the industry is certainly one of a class where competitive conditions work not only loss, hardship, and discomfort to the public, but in the

weaker companies tend to inefficiency and generally poor service. But regulation must not mean management, and it will not be construed as in any sense to mean management if commissions are constituted of competent and broadminded officials. On the other hand, there cannot, with justice to the public or to the corporations, be left a twilight zone in which neither appears to have jurisdiction. The light of common sense must be made to shed its rays upon this whole question, and when that day has fully dawned we shall find the exactions upon the corporations less burdensome and the resistance of the corporations to wise and reasonable requirements eliminated.

This centenary celebration is a milestone in the progress of one of the world's great industries. These hundred years have given to mankind many of the most marvelous of its processes and of its inventions. In a gathering of this character we draw upon the past for its history and its lessons. Knowing by these means of the character of the pioneers in the gas industry, and of many of their successors by more intimate association, I believe these men of the present are in a position to contribute much to the solution of problems that today confront the business community; and, furtheremore, I believe they are alive to this opportunity for beneficent public service.

In this time of industrial unrest the business interests of the country should play a conspicuous and helpful part. Commercial honor is not a rarity; the ethics of trade are not mere memories of a glorious past in the life of the nation. Such generalizations are but the familiar stock-in-trade of the professional agitator or self-seeking politician. But business—big business and small business in all its manifold branches—owes its strength and its progress and its permanency to that ordered liberty whose fostering care it can in no wise so well assure and when assured repay as by willing and complete obedience not only to the law of the land but to those higher laws without an observance of which we shall fall far short of our ideals of the true commercial greatness of a mighty people.

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PROCEEDINGS OF THE EIGHTH ANNUAL MEETING, ILLINOIS GAS ASSOCIATION.

Held in the Auditorium Hotel, Chicago, March 20 and 21, 1912.

First Day—Morning Session.

Discussion on the Bacon Paper.

The President—This very excellent paper will I hope bring out a brisk discussion. May we hear from Mr. Knapp?

Mr. Knapp—It may be interesting to the members to know that for years we have successfully burned coke dust and breeze under our boilers. At the outset we experienced considerable trouble and at times had to revert to coal firing to keep up our steam pressure, but now we obtain high efficiency from our coke dust, and at no time do we have to return to coal firing. In our South Chicago plant we have not made any complete boiler test, but I have before me a test made April, 1911, in Detroit, which compares Hocking Valley slack with coke dust, using a Hayes overfeed, stoker system. This test was made at the time of the installation of the stoker and probably does not represent the best efficiency that could be obtained.

Test on B. & W. Boiler, 278 Horse Power.—Heating Surface, 3,061 Square Feet, Equipped with Hayes Overfeed System.

	Hocking Valley Slack.	Slack Coke Dust.
Duration	5.12 hrs.	21.0 hrs.
Average Pressures—		
Steam at boiler by gauge, pounds	134.1	142.3
Draft in furnace, inches of water	0.4	0.36
Blast under grate, inches of water	0.2	0.28
Average Temperatures—		
Feed water entering boiler, degs. F.	99.7	128.0
Escaping gases, degs. F	671.5	417.2
Fuel and Ash—		
Total fuel as fired, pounds	9,173.0	21,795.0
Moisture, fuel, per cent	8.75	11 99
Total dry fuel, pounds	8,370.4	19,182.0
Total refuse, pounds	197.0	6,143.0
Per cent. refuse in dry fuel	2.35	32.0
Total combustible consumed, pounds	8,173.4	13,677.0
Dry fuel consumed per hour, pounds	1,636.1	913.4
Dry fuel consumed per hour, per square feet grate, pounds	23.37	16.79
Water—		
Total water fed to boilers, pounds	48,351.0	113,466.0
Quality of steam, per cent	100.0	100.0
Total water actually evaporated, corrected, pounds	48,351.0	113,466.0
Factor of evaporation	1.1526	1.17066
Total equivalent dry steam from and at 212°, pounds	55,729.0	132,830.0
Equivalent evaporation, dry steam from and at 212° per hour	10,884.0	6,325.0
Amount of steam used by blowers, per cent	....	5.65
Economic Evaporation—		
Water evaporated to dry steam per pound fuel as fired, pounds	5.27	5.206
Water evaporated to dry steam per pound dry fuel, pounds	5.776	5.915
Water evaporated to dry steam per pound dry fuel equivalent from and at 212° F., pounds	6.657	6.925
Water evaporated to dry steam per pound combustible equivalent from and at 212° F., pounds	6.818	9.727
Builder's rating	278.0	278.0
Net horse power developed	315.7	183.3
Per cent. rating developed	113.5	65.8
Efficiency of boiler and grate, based on gross B.T.U.'s	55.53	54.24
Analysis of Dry Fuel—		
Volatile matter	22.74	8.08
Fixed carbon	60.81	79.94
Ash	16.45	11.98
B.T.U	11,628.0	12,683.0
Analysis of Refuse—		
Combustible	30.35	59.7
Ash	69.65	40.3
Flue gas analysis CO_2, per cent. by volume	10.70	6.83

From the above you will notice that coke dust has a higher fuel value than the Hocking Valley slack. At the South Chicago plant we have a battery of four 400-horse power, hand fired, B. & W. boilers. The air blast is obtained from an 80-inch Garden City fan, delivering 14,200 cubic feet of free air per minute with 2.3-inch water pressure at fan outlet and $\frac{6}{16}$ inches in ash pit; grate area, 87.5 square feet; herring-bone grate, with $\frac{5}{16}$ inch by 5-inch openings. Our method of operation is to start with a 5-inch depth of fire and gradually build up until we have 8 inches of fire depth, at which time we clean. In burning coke dust we clean the fires every 2½ hours, with breeze every 4 hours. The terms "breeze" and "dust," as used here, are the same as used in Mr. Bacon's paper, the former being composed of sizes over ½-inch and through 1 inch, the latter all material under ½ inch. The labor necessary for stoking the 4 boilers is 11 men: Four firemen and one ash man on each shift, and one combustion man during day only. The combustion chambers are cleaned once every 24 hours and the amount of dust averages 4.1 per cent. of the fuel consumed. These results we obtained during January, 1912; this was a very hard month and, having some unusually high peak loads, it was necessary to keep the four boilers in run the entire month.

Builders' rating	1,600	H.P.H.
Maximum for short periods	2,400	"
Average daily maximum	1,823	"
Average daily minimum	1,428	"
Average for the month	1,647	"
Per cent. rating developed:		
Maximum for short periods	150	per cent.
Maximum for 24 hours	114	"
Minimum for 24 hours	89	"
Average for the month	103	"
Fuel consumed:		
Breeze	1,507	tons.
Dust	1,556	"
Total	3,063	"
Pounds water evaporated from 194° F. to steam at 140 pounds pressure	42,132,833	pounds.
Fuel consumed every 24 hours	197,613	"
Water evaporated every 24 hours	1,359,123	"

This gives for the month's average one boiler horse power developed for every 5 pounds fuel consumed.

Water evaporated to steam per pound of fuel as fired... 6.00 pounds.
Water evaporated to steam per pound of combustible... 8.75 "

Following are analyses of the fuel used:

	Average Four Samples. Dust.	Average Two Samples. Breeze.
Moisture	18.92	15.40
Volatile matter	5.34	1.76
Fixed carbon	76.59	84.62
Ash	18.07	13.62

The results obtained for the month compare favorably with the results obtained from coal fired boilers; in fact, there are very few plants working under the same conditions that can show as high efficiency with the use of coal.

Mr. Hartman—I was interested in looking into this subject in Germany, for the Germans, you know, are always looking out for small economies. For the last 20 years they have been burning coke dust successfully in their boilers, so it is past the development stage. They tried briquetting only to find it commercially unsuccessful, in that it cost too much to make the briquettes. In recent years they have developed the gas producer which we are using in our gas business installation. This producer runs under 24-inch pressure under the grate, the latter being of the revolving type continuously discharging its ash. It uses coke dust. Here are some figures on the size of that dust: 50 per cent. will be from zero to 4 millimeters; 25 per cent. will be from 4 millimeters to 7 millimeters; the other 25 per cent. will be from 7 millimeters to 12 millimeters, or all of it under ½ inch. This producer carries up the fuel and the air does not—the author speaks about mixing coke dust with the coal charge in the oven. I find that this also is a common practice, and in one plant in the Saar district in Germany, where they have a contracting coal, they mix with the coal coke dust, then stamp them before charging. In other cases, 10 per cent. of the dust is mixed with the coal for the same purpose.

The President—Does Mr. Bacon wish to reply to any of these remarks?

Mr. Bacon—Does Mr. Knapp use a force blast under the grates?

Mr. Knapp—Yes: we have a ¼-inch pipe under each boiler, using exhaust steam under 14 pounds pressure.

Mr. Bacon—Do you use dust mixed with coarse breeze?

Mr. Knapp—About half-and-half, the variation being governed by our requirements. When forced to use 100 per cent. efficiency on our boilers, we use straight breeze; if our requirements are about equal to our boiler capacity, we use about half-and-half, increasing the amount of dust as the steam requirements fall off.

Mr. Bacon—Has the dust which they attempted to return to the ovens been pulverized, or was it taken in the natural state.

Mr. Knapp—We never pulverize it. Of that which we have taken into the ovens, about 90 per cent. will go through an 8-inch screen.

Mr. Bacon—We started with the dust in natural state, that is passing through ¼-inch screen, and kept decreasing the size until we reached $\frac{1}{16}$ inch, at which size successful coking was obtained.

Mr. Knapp—Mr. Hartman spoke of the success they had in Germany in returning charges to the ovens. I have not been able to find any information in America on this subject, so I am very much interested in the success as attained in Germany. I understand the gas consumed that he mentions is similar to what we call furnace produced, a type of furnace producer with which we are experimenting.

Mr. Hartman—In this case there is no fluxing of the gas. Having a water seal, the grate is inclosed so that the air pressure cannot go out.

Report of Committee on Prevention of Accidents.

The President—If there are no further questions, we will proceed to some other business. At our meeting last year a committee was appointed to consider the matter of accidents, as a result of a paper on the subject of prevention of such, read by Mr. McPhail. This committee did considerable work during the year and has a report to present. Mr. L. H. Johnson, who was to have presented it, cannot be here this morning, so I will read it:

Your Committee on Accidents begs to present to you its findings up to the present date, which is considered but a small part of the work which may be accomplished by an investigation of this subject.

A tabulation of accidents may seem senseless, and of little or no value, until it has been impressed upon us that many of even the simpler accidents represent thousands of dollars in damages paid, prolonged litigation, destruction of property, and in some cases even loss of life.

It is not necessary that an accident shall have had a serious and costly termination to give it a place in a tabulated danger column. We must think always of such a possibility. The investigation has proved that accidents are not uncommon, and while the findings thus far are not exhaustive, they prove, however, that it is better to "Put a stout fence around the edge of the cliff," rather than to "Put an ambulance down in the valley."

Accidents are not chance happenings, or, paradoxically speaking, accidents are not accidents. Careful investigation discloses that, in all cases, barring the acts of God, some human agent was at fault. It is generally due to carelessness, which, in most cases, might be termed criminal negligence. Back of all is the question of responsibility.

Do not gather from this that all blame should or could be traced back to the employer. He is so completely surrounded by laws and regulations that he is frequently held liable where it would seem unjust. He practically always suffers through the negligence of his employees, and one of the most efficient safeguards which he can employ is the education of all those working under him.

It was with this in view that the Committee endeavored to compile as complete a list as possible of the accidents which may be encountered in the gas industry and to suggest remedies for the same.

Lack of time has prevented the completion of this work, and the Committee submits to you a list of some of the causes of accidents, respectfully recommending that another Committee be appointed to succeed in carrying this work to completion.

In closing, the Committee wishes to urge all the members of the Association to aid any future committee that its work may be of value to all and a credit to the Illinois Gas Association.

Respectfully submitted, Committee on Accidents.

Table of Accidents. Works—*Yard.*

Squeezed by frozen coke rolling from top of pile.
Hit by crane.
Dog broke on hoist, lever flew back, workman injured.
Burned while extinguishing fire.
Coke wheeler wrenched side.
Cleaning coke out between two cars. Switch engine came up quietly.
Man loading coke onto wagon, 3-inck plank fell from coke bunker.
Man riding on coke conveyor 40 feet high. Car overbalanced, man fell.
Switchman on car loading into gas works, caught trouser leg on drip riser.
Post holding guy ropes on derrick pulled up, derrick fell.
Hook on chain block pulley was defective, and broke. Load dropped.
Man looked in empty oil tank with lantern; explosion.
Automatic dumping coal car; lever dumping, lever flew back, breaking man's arm.

Boiler Room.

Stoker tripped and struck hands on red hot bar.
Fireman, shaking grate bar, slipped, struck head and sprained thumb.
Blowing flues; burned by steam.
Valve to boiler opened; man inside cleaning seals was burned.
Cut removing gauge glass.

Generator or Retort House.

Stepped in seal overflow-pot of water gas machine.
Piece of firebrick under blast valve on water gas machine, gas backed upon into blast pipe and engine room, ignited. Violent explosion.
Floor plate broke while wheeling coke buggy.
Steam valve to water gas generator opened while mason was inside relining generator.
Slipped while pulling buggies.
Squeezed by buggies.
Handles of buggy swerved by obstructions of wheels.
Buggy apron fell open.
Buggy handle dropped on foot.
Strains while pushing.
Run over by buggy.
Struck hand against buggy.
Clinkering bar dropped from rack.
Squeezed, burned or scratched by clinkering bars.
Strains while cleaning machine.
Burned by contact with hot machine, hot bars, etc.
Burned by hot cinders from machine.
Burned by flame from machine.
Slipped on floor.
Bumping against low beams, pipes, etc.
Stoker leaned heavy clinkering bar against bench. Bar slid along face of bench and loosened brick stooper which fell and hit man.
While augering standpipe, hot tar dropped on hand of stoker.
Stoker augering standpipe, fell and injured knee.
Coke wheeler caught hand in gate of coke buggy, injuring finger.
Blacksmith's helper lost end of finger while fitting cap to saddle in retort house. Cap slipped and sheared finger end by falling on its seat unexpectedly.
Stoker tore finger by getting it caught between end of coal buggy and guide to hinged side while lowering side.
New rope fell across hot bar, became weakened, broke in service.
Splinter on wood track from coal shed to retort house. Laborer struck it with foot.

Fire door opened on water gas machine on account of false signal; gas ignited; man burned.

Purifying House.

Unloading cast iron plates for a purifying box. Plates were on edge; one fell over and crushed man's leg. Oxide on fire, overheated.

Engine Room.

Engine controlled by long lever run between belts; belt broke, lever damaged, engine raced and wrecked. Slipped from scaffolds, staging, etc., through breakage, tilting, etc. Screw-jack flew back in face.

Pump Room.

Hand crushed while cleaning deep well pump.

Holder.

Steam hose on holder broken and drained water out of cup.

Shops.

Steel chips cause injury to eye.
Emery dust caused injury to eye.
Hot solder caused injury to eye.
Hit with sledge.
Hit with other tools.
Hit with material, etc.
Machine jerked material from grasp.
Dirt in old wound.
Stepped on nail.
Cut by circular saw.
Lead poisoning.
Fell from window while cleaning.
Squeezed between material, machines, etc.
Material dropped by employee himself or accidentally dropped on him.
Burning out old tar valve, gate closed, explosion followed.
Lead kettle in meter shop overturned.
Acid bottle in meter shop broke. Meters damaged by fumes.

Miscellaneous.

Cranking auto's, back fire, arm broken.
Kicked by horse.
Injury to eye from cinders, cement, dirt, etc.
Injury to axe, burns, etc., from chemicals.

Street Mains.

Digger for telephone company struck pick through 2-inch wrought iron main, covered hole with mud, gas escaped, blew up building.
Service digger for water pipe contractor, struck pick through ¾-inch high pressure service, put wooden plug in hole, plug dried out, gas escaped, got in sewer, killed flowers in greenhouse.
Frozen ground, digger with pick causes piece of frozen dirt to hit little girl in eye.
Six horses pulling ditch plow by cable, pin broke, clevis hit laborer in head, deep gash. Blood poisoning.
Allowed handle of lead kettle to get too hot; bent, tipping molten metal on man in trench.
Joined two 4-inch high pressure mains with Dresser sleeve, valves leaking, sleeve drew an electric spark, gas ignited.
Horse got both front feet in soft, gas-ditch, man helped horse out, horse stumbled, fell on man.
About 1 foot hard snow on paved street. Broke through snow to gain access to valve pit. When through, did not throw snow back over pit cover, sleigh tipped over.
Dresser sleeve used to fasten last length of pipe to main, high pressure. Length blew out of sleeve.
Employee struck match in ditch, gas ignited, badly burned.
Leak in main causing damage to trees and flowers.
Person tripped and fell over marking line.
Cut roots of trees, trees die.
Barricade ends not protected in congested districts. Clothing torn.
Opening not barricaded properly, people fell in ditch.
Wet lead in lead kettle, explosion, lead scattered, burns.
Hot lead splashing up, burned man.
Injury to eye while tapping, caulking, etc.
Ditch cave-ins.
Heat prostrations.
Injury while breaking pavement.
Cut by steel chip from hardie.
Sledge head came off, landed on user's head.
Electrolysis on main, sparks when making connections.
Paving brick fell from edge of ditch. Hurt man's toe.
Street man stepped backward into trench while helping to lower pipe.

Services.

Threading pipe at tool cart, ratchet slipped, injury to head.
Service run into house where coal bin was to be, winter's supply of coal thrown in, service riser broken.
Electrolysis on service pipes, spark when connection is made.
Vent on high pressure installation capped by plumber. Pressure on house pipes. Tin meter exploded.
Asphyxiation on service work when alone.
Hole in wall where service enters not cemented. Heavy rain floods basement.
Tunnel under sidewalk, hole not properly filled, sidewalk sinks, rain forms puddle on sidewalk, puddle freezes, pedestrian slips on ice.
Horse steps in soft ditch after rain storm.
Blew alcohol into service, when pump was disconnected, alcohol blew out and caught fire from lantern.
Attempted to turn gas on at high pressure service cock inside cellar, cock stuck, too much power exerted, cock broke off pipe, house blown to atoms, 3 men killed.
Building on fire, street paved, no street shut off on gas service, employee attempting to shut off gas on inside was caught beneath falling material and killed.

Drips.

Drip standpipe in sidewalk, pedestrian tripped and fell.
Drip standpipe in street broken off by wagon wheel.

Meters and Appliances.

Meters.

Newly set meter tested with match, left small flame unnoticed, melted lead and burned house.
Fitter started up wagon while helper was getting on, fell, hurt.
Piece of pipe projecting off fitter's wagon going round a corner hit woman in face.
Meters' shelves not being securely fastened to walls in halls, etc., and fall down.
Employee overcome removing meter while alone.
Meter shut off, stopcock passes gas, key turned on, gas escapes.
Dial glass explosion.
Hurt when street car struck wagon.
Electrolysis on house pipe. Spark when connections are made.
Fitter working under bulkhead in window, gas escapes.

Gas Stoves.

Stove shut off by lever handle cock at night while oven burners were being used for warming purposes, gas turned on in morning, top burners lighted, gas from oven burners escaped, explosion followed.
Struck in eye with stove wire.
Loose valve key on range. Child opens it.
Coffee boils over on range. Gas put out.
Hose cock near floor. Child pulls or turns it on.
Cock with lever handle, handle taken out, replaced wrong. Gas on when apparently off.
Woman turned on valve, then went after match, lighted it, badly burned hands and face. Nervous shock.

Appliances.

Globe or shade breaks on arc lamp.
Water heater set without flue pipe, fumes do damage.
Flat flame burner on swinging bracket or hot plate near tin meter, seams melt, gas escapes.
Set water heater, turned on meter without watching 2-foot hand, prepared to light heater already filled with gas, explosion and severe damage.
Arc lamp fell from its hanging, gas ignited by night light, explosion.
Attempted to straighten arc lamp, fell from step ladder.
Held hand over opening while helper went for plug, got tired, gas ignited by near-candle.
Working in bath room, burnt match thrown in tub of soiled clothes, burned.

House Piping.

Fitter on high ladder, bad jaw on wrench, fell and broke arm.
Gas pipe run through chimney flue pipe. Heat opened seam of pipe, gas escaped, fired.
Ladder slipped on smooth floor.
Ladder spreading, account rope breaking.
Fitter left candle burning in attic; set fire to house.
Fitter left trap door open; occupant of house fell into basement.
Testing for small leak with match; gas in partition ignited.

Statement Taking and Complaints.

Leak in meter due to rust; basement filled with gas, ignited by house furnace.

Fitter working under bulkhead thawing frozen service; helper shoved lighted candle under to see what he was doing; explosion.

Consumer thawing tin meter with torch, seam opens, gas escapes, fire.

Fitter thawing service with alcohol, spilled some on clothes, went outside, later lighted pipe. Clothes caught fire.

Motorcycle collision.

Statement taker left trap door open, woman fell through.

Leak in house pipes between walls, look with match, explosion.

Leak under floor, look with match, explosion.

The President—The committee in tabulating the accidents very carefully performed its work. Numerous requests were made on all members of this Association, to send in lists of accidents which they knew about; how they happened, giving any information relative to accidents. They have an excellent list here, but feel that, owing to the breadth of the subject, there are additions to be made. For instance, the law affecting the employer and the employee would be a very nice thing to embody in this report, and we hope to have it when the work is finished. Now, you will see that the Committee recommended that another Committee be appointed to continue the work. First of all we would like to get the will of the members on this Committee, whether or not we shall accept its report. Are there any remarks?

On motion (duly seconded) the report was ordered accepted.

Mr. Negley—Along this line I would like to inquire if the Association members have had any experience with insurance in the "Public Utilities Indemnity Exchange of St. Louis," or what was called the "John Q. Day Service Company." They are what you might call a mutual insurance company handling only public service companies, gas, electric and water, I believe. Quite a number of companies have been insured in it, and while we are not one of them, we are considering it, so I would appreciate information anyone could give me as to their reliability. They present a very attractive proposition, and if it is as good as they say, and if they are reliable, I think it is much better than paying a high rate to some of the old line casualty companies for casualty insurance.

The President—Has any member had experience with casualty companies along this line? You see, there is another feature of this report on the subject of experience we have had and the benefits or disadvantages in connection with policies in these companies. I have heard no motion to the effect that a new committee be appointed as recommended in this report, but I would like to hear such a motion.

On motion of Mr. Wallace [seconded] the Committee was reappointed, with instruction to carry on the work according to their own initiative.

(To be Continued.

FOURTH ANNUAL MEETING, SOUTHERN GAS ASSOCIATION.

HELD IN THE SEMINOLE HOTEL, JACKSONVILLE, FLA., APRIL 17, 18 and 19, 1912.

FIRST DAY—MORNING SESSION.

President Hoyt announced the opening of the sessions and introduced the Hon. W. S. Jordan, Mayor of Jacksonville, who thus

WELCOMED THE ASSOCIATION.

Ladies and Gentlemen of the Southern Gas Association: I wish I were prepared or even competent to deliver an address on this occasion that would be suitable for the representation indicated by those present. In my efforts to entertain and to meet the various conventions, I try to inform myself somewhat as to the uses and purposes of the meetings, but I have had little experience with the matter of gas, except to use it occasionally as a consumer. You meet in Jacksonville at an auspicious time, for the city is wide open. We have put out of court everything seeming of unpleasantness and disagreeableness, because the city has been turned over to our German friends, who are pouring in here from every direction. To-day and to-morrow wi l be banner days with our German population; and as they are particularly fond of good fellowship, good beer, and good things generally, you will all, of course, come in for your share of the pleasures that have been arranged for the Germans. We are particularly glad for such a representation, standing as it does for all sections of the Southern States. I know the character of work in which you are engaged means much for the pleasure, comfort and happiness of our homes. Using in our domestic economy a large volume of gas, I am conversant with the comfort and pleasure that we get out of it as well as the convenience it affords. I don't know that I could keep my wife in good humor if I didn't have some gas appliances at home. We cannot always rely on the coal or wood man, but when we call on the gas man, or turn on the gas tap, we get heat in our stove; again, we warm up the dining room and light other rooms when the electric light fails. So I know gas is a thing of absolute necessity to every family in Jacksonville; and, as I said, it never failed us when we called on it. Getting together as you do from all sections, for an exchange of ideas, that enables you to make efforts to better the service, to improve its conditions, and to enlighten the public as to what you have and what you are doing—all this can only result in good, not only to the public but to you as members of the Association. I earnestly hope your meeting will be a thorough success in every way, though there is no reason why it should not be. It is one of the largest conventions of this kind I ever had the pleasure of addressing, and, from the character of those present, I know that your exchange of ideas and opinions will be mutually beneficial, and that you will get information that will be useful in many ways. As for the city, we are justly noted for cordiality and hospitality. Our open-hearted people are always glad to welcome visitors, and we will do what we can, officially and as citizens, to make your stay a pleasant one. There are many attractions in and around Jacksonville that, if your time or the work of your convention will permit, I hope you will take advantage of—such as the "Ostrich Farm," the drives out to Riverside, again, towards Ortega, and down to Atlantic Beach, which, by the way, you can hardly take because the road has been very much torn up; but if you do you will see a beautiful beach and a magnificent hotel, for your inspection and pleasure. We all want you to feel thoroughly at home in Jacksonville, and will be glad to do what we can to make your stay a pleasant one, so that on your return home you reach there with many pleasing recollections of your reception here. Thank you. [Applause.]

The President then introduced Mr. George L. Drew (President, the Jacksonville Board of Trade), who spoke these

FURTHER WORDS OF WELCOME.

Mr. Drew—Mr. President, Ladies and Gentlemen: It is with much pleasure that I welcome you on behalf of Jacksonville's Board of Trade of which Mr. Hoyt told you I am President. It is a peculiar pleasure, too, because your President is an honored member and one of the Governing Board of our institution. To such a man as Mr. Hoyt is due the credit for the supremacy of the Jacksonville of to-day; I say supremacy, because it is supreme in Florida. Jacksonville is the gateway of Florida, both commercially and in point of tourist travel. Our increase has been phenomenal. Without wearying you I would like to call attention to a few of the leading gains. The imports of Jacksonville increased 45.7 per cent. and the exports 196 per cent. in the year 1911 over 1910, with the latter as a basis. The group of southernmost Atlantic ports, starting at and including Charleston, running southward to and including Jacksonville, increased from the port business, as compared with the group of ports to the north of them, running from and including Wilmington, N. C., northward to and including Baltimore, between 1910 and 1900, reduced the lead of the latter group in port business from the ratio of 14 to 1 to 3.6 to 1, and in 1 year (1910-11) still further reduced this $\frac{1}{10}$ from $\frac{2}{3}$ to 1 down to 3.2 to 1. At this rate of 1911 over 1910 the difference will be overcome in 8 years and, if such lead is maintained, these South Atlantic ports included in the group with Jacksonville will equal the ports of the North. Our increase in bank clearances has been enormous. Ours is the distinction of having one of the largest post offices in point of receipts of mail matter collected of any post office in the South. We also have the distinction of handling more passengers through our terminal station here than any other city south of Philadelphia, only Washington being ahead of us in inauguration years; and we are proud of Jacksonville. The spirit which pervades every one of its citizens is exemplified in your presence. A man came here 5 years ago, without the blare of trumpets, and lacking anyone to herald his coming, pulled his coat off and went to work diligently and faithfully for the public of Jacksonville. When the Board of Trade in our city found that we had such a man as H. B. Hoyt, we immediately put him to work. I want to say furthermore, as President of the Board of Trade, in appointing committees, Mr. Hoyt has never been the man to say to me, "Mr. Drew, I won't be able to attend to the duties of that committee;" but whenever appointed on any committee, no matter how onerous the duties are, Mr. Hoyt goes to work like a man and performs his duties as committeeman; and to this spirit is due to-day the up-building and the progress of the city. Gentlemen, I hope your deliberations will be filled with the utmost good, and Jacksonville and its Board of Trade both bid you welcome. [Applause.]

RESPONSE OF MR. WHITE.

The President introduced Mr. C. E. White, General Manager of the Montgomery (Ala.) Light and Water Power Co., who made the following response to the addresses of welcome:

Mr. White—Mr. Mayor, President of the Board of Trade, Ladies ang Gentlemen: The Honorable Mayor referred to the light which sometimes fails, wherefore I am at a loss to know why our President selected me to respond to these addresses of welcome, except that probably I represent the two kinds of light—one which sometimes fails, and the other which never goes out. [Laughter and applause.] Most of you will say we have received a very warm reception. Yesterday on coming into the city we saw gentlemen with helmets and holster straps around their waists. Later, while going to a gas yard we found one of them mounted on a horse following us. We thought trouble was brewing. But from the words of the Mayor, gentlemen, we are assured we will go back to our respective homes just as we came, safe and sound, probably a little worse for the wear, but all right. I would say to the Mayor and to the President of the Board of Trade, if the jail doors are closed, to please keep them closed, and, if they are open, to let them stay open, so that, should we want to see the interior of one, having seen we can get out without asking anybody to show us the way. Listening to the words of President Drew, it occurred to me, gentlemen, that we were here for serious business, yet no business can be so serious as to preclude time for the pleasantries. Engaged in the most important business of supplying currents for lighting, fuel for heating, we conduct a system constituting one of the most constant elements as the sun. By turning a gas tip you get the cheapest and best form of heat, and generally, for many places, a most excellent form of light. [Laughter and applause.] Jacksonville, gentlemen, has capitalized its climate. I have heard of the St. Johns river since I was a boy, and supposed it was a creek filled with water hyacinths. Coming here yesterday I find it a noble stream over a mile wide, just from casual observation, and so it is almost a bay. I understand that steamers drawing 30 feet come to these wharves. You have capitalized that feature. You have capitalized the thing that you had before you; and, gentlemen, that is what we are trying to do in the gas business. We have one paper to-day in which we are capitalizing, I think, the most valuable asset in the gas business; that is, the true relation of the consumer with the gas company. The day has gone by when the gas man can say, "Anybody who wants my product can get it," or "They will take it as we give it." Gentlemen, the progressive gas companies don't do business that way. We deliver our product to them in the best shape possible, for we have learned to sell that product the same as any merchant sells dry goods, hosiery or any other article. Being a commodity, we put it on the plane of other commodities, and I think gas companies that have so done can point to the greatest success. We believe that we are giving a service (a word that is used a great deal) and that service doesn't mean simply that when we take the gas to your door that our business with you ends; it really only begins. If one considers that which some gas companies are doing towards educating colored cooks—spending thousands of dollars, not to increase your gas consumption but to decrease it—an idea of the expenditure may be clearly gained. I know that, in the 24 properties with which I am directly and indirectly connected, our business is conducted as honestly and as squarely, with a due regard for the right of the consumer as well as for the company, as any other business anywhere under the sun. There is nothing in the gas business today, gentlemen, to prevent those engaged in it from holding their heads up as high as anybody in any other business. It is a business of which we should be proud, and those who are young in it should look forward to as great success as could be gained in any other legitimate business. The Mayor referred to the Germans who are here. I am glad to know we can participate in some of their festivities, that we have come here at this auspicious time, and I know, as God loves the Germans, that he will also love the gas man, who behaves in seemly fashion.

The President ordered

ROLL CALL,

and Mr. Redding moved that the roll call be substituted by the registration list, as made by the Secretary. [Adopted.]

REPORT OF EXECUTIVE COMMITTEE.

SEMINOLE HOTEL, April 16, 1912.

The Executive Committee met pursuant to call. Thosepresent were:

President—Harry B. Hoyt.
First Vice-President—C. E. White.
Second Vice-President—James Ferrier.
Secretary—E. D. Brewer.
Directors—R. M. Redding and S. W. Brown.

Applications for membership from the following were received and approved:

Active.

Adams, C. W., Shreveport, La.	Kollock, E. C., Charleston, S. C.
Andrews, C. H., Greensboro, N. C.	Keen, W. W., Mobile, Ala.
Benedict, C. M., Charleston, S. C.	Leech, C., Macon, Ga.
Bernard, J. T., Jacksonville, Fla.	McDonnold, H. E., Atlanta, Ga.
Berenius, C.B., New Orleans, La.	McKinney, C. B., Biloxi, Miss.
Boote, J. O., Jacksonville, Fla.	Nettles, R., Tampa, Fla.
Campbell, E. C., Little Rock, Ark.	Porter, H. C., Montgomery, Ala.
Cooper, F., Jacksonville, Fla.	Proctor, J. E., Columbus, Ga.
Cooke, J. N., Jacksonville, Fla.	Rand, R. L., Anniston, Ala.
Cowles, J. E., Shreveport, La.	Smith, D. L., Jacksonville, Fla.
Collins, H., Charlotte, N. C.	Sligo, G., Raleigh, N. C.
Davis, L. J., Mobile, Ala.	Stanford, T. R., Jacksonville, Fla.
Donahoo, A. W., Jacksonville, Fla.	Southwell, M. H., Macon, Ga.
Dull, Mrs. S. R., Atlanta, Ga.	Turrentine, R. E., Houston, Tex.
Guard, E. R., Birmingham, Ala.	Tuttle, W. B., San Antonio, Tex.
Gifford, B. J., Little Rock, Ark.	Vance, S. M., Bristol, Tenn.
Gilreath, Z. H., Macon, Ga.	Vesey, H. G., Jacksonville, Fla.
Hanson, H. O., Mobile, Ala.	Wallace, C.W., Montgomery, Ala.
Higginson, N. F., Little Rock, Ark.	Walker, M. T., Beaumont, Tex.
Hole, R. J., Salisbury, N. C.	Waring, G. H., Charleston, S. C.
Holtz, M. H., Jacksonville, Fla.	Werber, C. A., Atlanta, Ga,
Hood, J. E., Knoxville, Tenn.	Wimberly, A. H., Atlanta, Ga.
Hopwood, F. G., Jacksonville, Fla.	Zeek, C. F., Pensacola, Fla.
Johnson, R. B., Charleston, S. C.	

Associate.

Brill, A. P., Pittsburgh, Pa.	Potter, J. L., Milwaukee, Wis.
Carr, J., Atlanta, Ga.	Richman, H. H., Philadelphia, Pa.
Colyer, T. W., Philadelphia, Pa.	Richardson, C. E., Phila., Pa.
Creviston, A. E., Atlanta, Ga.	Shirra, J. C., Albany, N. Y.
Deckert, T. E., New Orleans, La.	Sanborn, R. A., Bridgeport, Conn.
Elliott, C. L., Albany, N. Y.	Taylor, J. D., Atlanta, Ga.
Kelley, A. B., Philadelphia, Pa.	Warrington, C,, Atlanta, Ga.
Meadow, B. M., Birmingham, Ala.	Weart, S. S., Canton, O.
Merke, R. F., Milwaukee, Wis.	Wheler, J. R., Washington, D.C.
Mueller, C. E., Erie, Pa.	

The following papers were received and authorized to be read and discussed:

"Efforts to Please our Customers and Render Efficient Service," by Mr. R. C. Congdon, Atlanta, Ga.

"Better Domestic Appliances," by Mr. C. A. Case, Cleveland, O.

"Scientific Salesmanship as Applied to the Gas Industry," by Mr. Albert B. Kelley, Philadelphia, Pa.

"Gas Lighting in the South," by Mr. H. P. Dains, Philadelphia, Pa.

"A Practical Demonstration," by Mrs. S. R. Dull, Atlanta, Ga.

"The Man at the Helm of the Gas Boat," by Mr. Roscoe Nettles, Tampa, Fla.

"Operating a Gas Works with Negro Labor," by Mr. S. E. De Freese, Chattanooga, Tenn.

"Meters and Meter Repairs," by Mr. S. W. Leach, Macon, Ga.

The Executive Committee appointed a Nominating Committee of 5 members, as follows: R. C. Congdon, M. A. Bowlin, V. B. Day, S. E. DeFreese, MacD. Dexter.

The $1,000 bond of the Secretary-Treasurer was accepted and ordered made a matter of record.

Propositions for altering the provisions of the Constitution were laid before the Executive Committee, which instructed its members to correctly phrase these propositions and bring them before the general meeting of the Association. The members so instructed were Messrs. C. E. White and James Ferrier. The resignations of the following members were accepted:

A. C. Blinn,	D. S. Williams,	Calvin Holmes,
R. Schaddelee,	F. W. Plumb,	H Hirsh,
J. R. Lynn,	E. S. Tibbetts,	Paul McMichael,
W. D. Marshall,	G. T. Coggeswell,	G. I. Doig.
Morgan Morgans,	C. J. Gillett,	

Respectfully submitted, E. D. BREWER, Secy.-Treas.

On motion of Mr. Congdon, seconded by Mr. Brown, the report of the Executive Committee was accepted and the Secretary was instructed to cast the vote of the Association for the applicants for active and associate membership.

ADDITIONAL APPLICATIONS.

The Secretary—If there is no objection I would like Mr. Congdon to include in his motion these here who have just signed applications:

(*Continued on page* 400.)

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NOTICE TO ADVERTISERS.

New Advertisements and changes of copy therefor should be in hand Wednesday noon of week prior to date of issue.

NEW YORK, MONDAY, JUNE 10, 1912.

BRIEFLY TOLD.

Some Current Institute News.—The "Gas Institute News" is our authority for the statement that a meeting of the Technical Committee of the American Gas Institute was held in the building of the U. G. I. Company, Broad and Arch streets, Philadelphia, Pa., the afternoon of the 30th ult. It was largely attended, as the following roster will show:

Hon. I. C. Copley (President),	G. T. Macbeth,
J. M. Morehead (Chairman),	H. L. Rice,
Geo. G. Ramsdell (Secretary),	H. B. McLean,
J. B. Klumpp,	W. H. Gartley,
C. J. Ramsburg,	Walter Forstall,
C. O. Bond,	J. D. Shattuck,
Wm. A. Castor,	H. W. Alrich,
C. O. Fox,	J. H. Taussig.

The session was mainly taken up by the discussing of things relating to the October meeting, and in tentatively arranging the paper list, in so far as that is possible at the current time. It was determined (and very wisely, it seems to us) to take up the time of 3 days (if necessary) to insure the proper consideration of the papers. To insure that the papers be in the hands of each member of the Institute sufficiently in advance of the meeting, it was recommended that the proper authorities give due notice that all papers for presentation must be in the hands of the Secretary not later than September 1st.

At a called meeting of the Board of Directors, set for the office of the Institute, at 2 P.M., Friday, the 17th ult., the following were present: I. C. Copley, President; E. N. Wrightington, Vice-President; Geo. G. Ramsdell, Secretary; and Messrs. W. R. Addicks and Rollin Norris. This session was quite a busy one, the main topic being the conservation of the finances of the Institute. By all hands it was agreed that a campaign to increase the membership materially be instituted. The findings of the meeting of the Technical Committee, as set forth above, were unanimously ratified. Messrs. W. H. Gartley, Alten S. Miller and W. Cullen Morris were appointed a committee to co-operate with the American Society of Mechanical Engineers in order to bring about, if possible, the establishing of an international uniform system of wrought iron pipe threads.

Welfare Work.—The welfare work in the Public Service Corporation of New Jersey, which is described more or less in detail on another page, shows an important phase of the industrial life of a large part of the State of New Jersey. The liability clauses affect employees in 199 municipalities, serving a population of over 2 million people, assuredly "big business," as these further data will indicate: The numbers of gas consumers are 400,000; electric users number 75,000; and the passengers carried in a year are not fewer than 362,000,000. While the financial phases of the relations between the employer and the employee have received the greatest attention, the membership of its employees enrolled in national gas and electric organizations, with the attendance of such members at the meetings, shows that the educational and social features are not neglected. The local classes in the Gas Salesmanship Courses, of the National Commercial Gas Association, were inaugurated since Mr. Percy S. Young, Comptroller of the Public Service Corporation, became Chairman of the Board of Educational Control of that body, and undoubtedly the manner in which this work will be undertaken in New Jersey will set another forceful example of the sort given by its welfare work.

New Business Methods, Baltimore, Md.—"D." forwards under recent date this account of good work well done: During last April, the New Business Department of the Consolidated Gas, Electric Light and Power Company, of Baltimore, sent to each home in the city not equipped with a gas range, two letters, stating the desirability of gas as a fuel and inclosing printed matter descriptive of the ranges sold by the Company. While going through the files to secure the names of those customers without gas ranges, a letter was also filled in for each customer using a type of range sold by the Company more than 10 years ago. This letter directed the customer's attention to the elevated oven ranges, if the gas range which was previously purchased did not adequately meet the needs of the kitchen. This direct advertising was in conjunction with a series of advertisements run in the newspapers. An advertisement appeared in one paper each day that was devoted exclusively to elevated oven ranges. In addition to the letters and the newspaper advertisements, a large electric sign, placed on the roof of the Company's building, was included in the campaign. This showed a gas range with its oven in use. A coffee pot, from which steam issued, was placed on one of the top burners, and a fowl was roasted in one of the ovens. The wording was simply, "Gas Ranges, Easy Terms." The fourth advertising medium was the Company's window display, which advertising was designed to serve as a feeder to the sales' force in the office and the solicitors on the street. The Baltimore Company has 105,000 gas customers. On April 1st, 1912, the number of gas ranges it had installed was 72,321; and the sales of gas ranges for the month of last April showed an increase of 39.4 per cent. over April, 1911. In May the Company conducted an advertising campaign for gas water heaters along the same lines, except that two letters were sent only to all residences on its mains where gas water heaters are not now in use. All told, the two campaigns, range and water heater, necessitated the multigraphing, addressing and delivery of more than 100,000 letters. The campaign was carefully planned in advance and all of the details worked out. The utmost care was given to the execution of the plan, and, beginning with the selection of the stationery, the printing, the multigraphing of letters, the matching of the typewriter ribbons, the selection of typists who would transcribe the names accurately, the folding, sealing, and finally the delivery of the letter into the hands of the customer as a personal communication of the Company. The extent of the campaign was based on the results obtained by a similar campaign conducted in previous years.

Of Course, the Tournament was a Success.—The Annual Spring golf tournament, shared in by the gas and electric companies of New York city, was held Wednesday, May 22d., on the handsome links of the Oakland Golf Club, at beautiful Bayside, L. I. The "Gas-Electrics" turned out in full strength; 47 players competing, while 14 non-combatants augmented the gathering at dinner. The President's Cup, presented by Mr. George B. Cortelyou, for the 36-hole handicap, was won by that liveliest of engineers, Mr. W. Cullen Morris. Others who were successful in carrying off trophies were: Messrs. G. W. Doane, Philip Cross, John Stilwell, M. M. Graham and J. B. Hare, all winners of first prizes in the several events. Messrs. G. H. Woodall, H. L. Snyder, A. W. Stark and C. G. M. Thomas were the runners up. The dinner was a most enjoyable event; and President Cortelyou's speech, which was in his customary happy vein, aroused his auditors to a high degree of enthusiasm. Mr. R. A. Carter, an able Temporary Chairman, set the ball in motion

for the organization of a permanent "Gas and Electric Companies' Golf Association of New York," a programme which was satisfactorily carried out, amid good-natured cries of steam roller. Mr. H. B. McLean, the man who has been responsible for the yearly golf tournaments, and who has borne the bulk of the organization and executive work from the start, was elected Secretary and Treasurer, and Mr. H. M. Edwards was President. Mr. N. F. Brady and Mr. W. W. Freeman made short speeches, and "Chief" W. H. Bradley, beloved of men, was acclaimed with delight when he arose to what is his reluctantly, but always well performed task of speech making. This record would be incomplete without noting the fact that that incorrectly named Engineer (Mr. Oscar H. Fogg), entering in the dual capacity of scorekeeper and toastmaster, served so capably in both capacities, that even the Chaplain of the Sward and the deacon of the feast were both moved to remark that "O. H." had left nothing undone that he should have done, and that there was abounding vitality in him. Possibly some of his rulings in the introductory or presentation remarks were a trifle biting, but this was altogether forgivable, in that most of the sentiments were not all foreign to "the mustard." The "Gas-Electrics" tournaments have always been most enjoyable, but none more so than that of last May 22d, 1912. Messrs. McLean and Graham, the latter the Secretary of the Oakland Golf Club (as well as a gas man), should be highly gratified by the result of their efforts to bring the gas and electric men of New York City together in friendly competition; for the annual golf day has become an institution and one which will survive.

GAS PRESSURE HEARING, NEW YORK CITY.—The Public Service Commission, First New York District, has under consideration proposed regulations covering the pressure of gas in the Borough of Manhattan. The regulations proposed were given at length in the JOURNAL, under date of April 8, 1912, page 240, the same having been based on a report made after a lengthy investigation by Mr. Wm. A. Baehr, whose findings may be thus stated briefly:

Minimum, 2 inches.
Maximum, 6 inches.
Maximum daily variation, 2 inches.
Maximum momentary variation, 5 tenths inch.
Maximum pulsating variation, 2 tenths inch.

At the hearing, held June 6 in the rooms of the Commission, before Commissioner Maltbie, Mr. Baehr was the witness during the entire morning session. His testimony supported the regulations as being possible of execution after considerable work had been done by the Companies, and as desirable rather than immediate requirements with penalties. During the afternoon session, Mr. C. C. Simpson and Mr. W. R. Addicks testified in behalf of the Company regarding the desirability of omitting the maximum pressure, of lowering the minimum, and of increasing the permissible daily variation to 3 inches. With reference to regulations covering momentary and pulsating variations, it was brought out that these were unique in the history of gas regulation, and that the recording instruments did not show the actual gas conditions at the consumers' appliances; gas pressures, too, being affected by barometric changes, wind storms, and notably by gas engines on consumers' premises. The hearing will be continued.

CURRENT MENTION—

"W. A. C.," writing to us under date of the 5th inst., says that the Audit Company, of Philadelphia, in its control of the Roanoke (Va.) Gas Light Company, proposes that such proprietorship shall be a "booster for Roanoke." To prove their good faith, the proprietors have thus announced a cut in the selling price of gas. Here is the story: Beginning with gas sold in June, the price will be $1.20 per 1,000 cubic feet, if the bill is paid on or before the 10th of the month, making the cost of gas to all consumers who pay their bill within the 10 days' discount period, $1.10 per 1,000 cubic feet. The former price was $1.50 per 1,000 cubic feet, less 37½ cents discount, making the price to consumers paying within the discount period $1.12½ per 1,000 cubic feet. This is a reduction of 2½ cents per 1,000 cubic feet in the net price of gas, and, owing to this reduction, the 10 days' discount period will be strictly adhered to. It is the desire of the Company that all of the consumers get advantage of the $1.10 rate, but in order to do so, bills must be paid on or before the 10th day of the month following that in which the gas was used, as, after the expiration of the discount period, the rate of $1.20 will be impartially enforced. This reduction in the price of gas is voluntary, and is in line with the progressive policies which are being and will be pursued by us. Our sole aim is maximum service at a minimum cost.

THE Brown Instrument Company, of Philadelphia, is "out," with another of its handsome catalogues. This catalogue (it is really more of a book than a catalogue) is easily the most complete pyrometer publication ever put on the market. Having gone through its 56 quarto pages, one who remains ignorant of pyrometers and their uses, in so far as such tuition may be gained by reading only, must be a very poor absorber of plainly printed explanation. It may not be generally known, but it still is the fact, that the Brown Instrument Company is not only the largest manufacturer of this class of instrument, but is also the pioneer in that line of work in this country. It began the manufacture of pyrometers of the expansion type in America in 1860, which means that it is well started on its second half century of business dealing.

THAT master of the gas engineering profession (Mr. Isaac Battin), writing to us from his home in Holmesburg, Pa., under date of the 29th ult., had this to say: * * * "Inclosed find P. O. money order for $3, to cover my subscription to the JOURNAL for the ensuing year. For the past year I have been favored by excellent health, and am enjoying all the satisfaction and comfort in life that one well over four score years can expect. Kindly remember me to any who may remember me." * * *

THE Utica (N. Y.) Gas and Electric Company recently installed a Lloyd station varying pressure control for automatically building the pressure at the works to correspond with the loss of pressure into the distribution center by means of the excess flow during the peak hours. The apparatus is working perfectly for them, and is producing remarkably uniform distribution charts. The Messrs. Lloyd confidently assert that this apparatus is really one of biggest advances in the field of automatic distribution that has been recorded in the gas business for a long time.

Publications.

[All Publications, Catalogues, etc., mentioned below, are kept in our office for the convenience of our patrons.]

Business Features of Engineering Practice.—The revised and enlarged second edition of "Lecture Notes," by Dr. Alexander C. Humphreys, and several lectures and papers by other authors, has been issued by the Department of Economics and Engineering, Stevens Institute of Technology, of which sterling educational institution Dr. Humphreys is President. And we are here impelled to say that Dr. Humphreys has admirably succeeded in keeping the work of the Institute along the lines laid down by his tutor (and prince of Scientists, the late Dr. Henry Morton). The present volume holds within its covers nearly 600 pages of vitally good matter, and contains important contributions from a number of men prominent in financial as well as engineering circles. While considerable data is included the the various contributions aim to present the theory as regards the relations between "Business" and "Engineering," and to provide inspiration for broad constructive work.

"*Fields, Analysis,*" 1911.—The annual compilation and analysis of the accounts of certain British gas companies for the year 1911, is now ready for distribution. Of course, the publishers are the Eden Fisher Company, Ltd., London, England. The first Company listed was the first Company incorporated, under date of June 9, 1810. It was chartered in April, 1812, and this centenary of gas lighting was celebrated in this country and in England during April of the current year. The "Analysis" must surely be a delight to the statistician, as the great array of figures given is plumped at once without preambles or exemplifications. The companies listed include the 3 London, and 11 Suburban (London), with 22 in England, Scotland and Ireland. The consumers supplied by these companies total nearly 3 millions, and the data concerning their accounts, is to say the least, extensive. The price of the book is $5, and orders for it may be sent through us.

Engineering Valuation of Public Utilities and Factories.—A short resume of recent opinions on public utility valuations, with suggestions regarding methods of appraisal, by the author of "Foster's Handbook," Horatio A. Foster. The publishers are the D. Van Nostrand Company, and the price is $3. This is the latest contribution in book form to the subject of public utility valuation, and may be termed "short," for it contains less than 350 pages, wherefore the quantity of descriptive matter which can be inserted in a book of this size, along with the necessary excerpts from court decisions and association papers, most naturally must be on the plus or over scale. Public utilities are peculiar, in that large capital outlays are required, and the valuation of plants which have been in *continuous* operation for upwards of half a century is a large subject. The present volume, however, will undoubtedly prove welcome to gas company managers who are or will soon have to grapple with appraisals.

Public Service Regulation.—This publication, now in its 5th month, indicates by its title and by its contents that the subject of "Regulation" is in its infancy.

New Jersey Public Utilities Report, 1911.—The Second Annual Report of the Board of Public Utility Commissioners, State of New Jersey (1911), is now ready for distribution. The present volume contains 500 pages, and the principal topics are orders and investigations. Little statistical information is included.

(*Continued from page 397.*)

Active.

Blake, F. J., Nashville, Tenn.
Blalock, I. A., Gainesville, Fla.
Golden, J. W., Savannah, Ga.
Hunter, C. W., Ocala, Fla.
Knight, J. J., Kalamazoo, Mich.
La Portes, Wm., Charleston, S.C.
Lyon, C. L., St. Augustine, Fla.
Maguire, B. J., Tampa, Fla.
Marques, R. L., Birmingham, Ala.
Merz, A. C., Bessemer, Ala.
Roome, H. C., Miami, Fla.
Rumbold, A. H., Tampa, Fla.
Wheeler, H. F., Hattiesburg, Miss.

Associate.

Breen, C. J., Detroit, Mich.
Conroy, J. P., New York.
Corbett, M. A.
Gieseler, Wm. H.
Gribbel, W. Griffin, Phila.
Guitteau, W. S., Detroit, Mich.
Kent, R.
Pierce, R. F., Phila.
Wardell, C. W., Phila.
Withers, W. G. [Carried.]

ELECTION OF NEW MEMBERS.

The Secretary cast the ballot as directed, so reported to the President, and the latter (asking the new members to rise) welcomed them to membership and asked them to take active part in the proceedings.

The President then read his

ANNUAL ADDRESS.

[For the text of the Address, see JOURNAL, April 29, p. 285.]

On motion of Mr. Ferrier (seconded by Mr. White) the President was authorized to appoint a committee of three to receive and consider the address, and to report upon its recommendations.

Secretary Brewer then read the

ANNUAL REPORTS OF TREASURER-SECRETARY,

as follows:

As Treasurer, Mr. Brewer reported receipts amounting to $1,121.68, expenditures amounting to $1,021.38, and a balance of $103.30. As Secretary, the report was routine.

On motion of Mr. Congdon (seconded by Mr. Ferrier) the reports were received and ordered filed.

On the suggestion of the President a motion was put and carried under which the salary of the Secretary was increased to $250 per annum.

The President, in announcing the result said: From my experience during the past year I know the Secretary has a great volume of work to do. I believe, in the future, as the Association grows—as we know it will—that the Secretary's duties will become still more laborious. More of his time will be required, and I believe this action is not only meritorious but praiseworthy. Speaking along the matter of revenue, I consider the duty of further increasing our membership, for the reasons set forth, is of great and pressing importance. We must increase our membership through the demands for revenue, and, after all, it is usually the dollars and cents reason, that rules us. The demands of revenue must necessarily increase, if we expect to do the work that we should. So I say to all of you, keep on the lookout at all times for new members. Get the man whom you individually can get. Probably someone man only one of you could get. So, I say, "Get that man." Are there any reports to be submitted by sub committees.

Mr. Ferrier—I am one of the committee of three appointed to report upon hygiene in connection with gas, ventilation and the like. Mr. T. D. Miller, of St. Louis, is the Chairman of that Committee, and, while we have a good deal of the matter in hand, through his absence the report has not been put in concrete form, wherefore I ask the indulgence of the Association to be allowed to present the report to-morrow. [Agreed to.]

AMENDING THE CONSTITUTION.

The President—Now we will take up general business that any member wishes to submit.

Mr. White—To get additional revenue to pay our increasing expenses I submit an amendment to Art. III., Sec. 10 of the Constitution. As this has met with the approval of Executive Committee, I submit it. Sec. 10, Art. III., reads as follows:

"Active and associate members shall pay an initiation fee of $10, which shall include one year's dues, at the meeting at which they are elected, and dues thereafter in the sum of $5 annually, which shall be paid in advance."

The section will read (if you adopt the change), as follows:

"Active and associate members shall pay in advance dues of $5 per annum."

I offer that as an amendment to the Constitution. It is not to be considered retroactive.

The President—You have heard the amendment to the Constitution as proposed and introduced by Mr. C. E. White of Montgomery.

The President put the motion, and declared it was adopted.

LETTERS OF REGRET.

The Secretary read a number of letters regretting the inability of the writers to be present. Included in these were messages from Messrs. H. W. Frund, C. L. Holman and Geo. D. Roper.

On motion of Mr. Redding [seconded by Mr. Rushin] the Secretary was instructed to send a telegram of greeting and felicitation to the directors of the Centenary of the Introduction of Gas as an Illuminant, meeting to celebrate which was then in progress in Philadelphia, the telegram to be prepared by Messrs. Case and Schall, they to meet at luncheon to prepare the greeting, and to submit the greeting as prepared to the Association or to send it without submitting it.

The President announced that in the interval of the last meeting Mr. C. J. Gillett, of the Lindsay Lighting Company, had passed away, and that it was deemed proper that a committee on resolutions of respect be appointed. As such committee the President named Messrs. DeFreese, Congdon and Parker.

Mr. Rushin then followed with an outline of the entertainment programme arranged, after which the President introduced Mr. R. C. Congdon, of Atlanta, who read the following paper on

EFFORTS TO PLEASE OUR CUSTOMERS AND RENDER EFFICIENT SERVICE.

We all appreciate the value of fostering and maintaining the goodwill of the people we serve. We not only appreciate the justice in giving a square deal, but know the value of kindly consideration on the part of the people when we put forth efforts to increase our business. To be most efficient we must recognize our opportunities and make use of them. I felt that if the head of each department of our Company would explain his views to me, I might gain a broader knowledge of what we are doing, and at the same time might offer suggestions which would tend to perfect our methods.

Accordingly, I addressed a letter to the works' superintendent, superintendent of mains, foremen of shop, collection department, complaint and order department, purchasing department and new business department. I asked these gentlemen to give me the benefit of their experience, to let me know what they considered their opportunities to please the customers, and what they were doing to properly instruct those under them. Following are the replies I received:

From Mr. A. D. Whittaker, Superintendent of Works.—My department comes in contact with the public only through the sale of coke, tar, etc. In handling the coke business we try to observe the following points:

1. Receive orders over the telephone with courtesy, appreciation and intelligence.
2. When there is an extra rush of coke orders and delays are probable, we explain the condition when the orders are received.
3. We deliver all orders as promptly as possible.
4. We see that the coke delivered is of good quality.
5. We try to have drivers who are courteous and careful to give no cause for complaint.
6. We try to keep up the appearances of the teams.
7. We try to avoid discrimination in filling orders, taking every one in turn.

These general remarks apply to our tar business. We perhaps come in contact with the public more directly in sprinkling streets with tar, and have to use extra precaution to protect them from coming in contact with the wet tar, and especially prevent tracking on the sidewalks. This means the use of sand, sawdust, planks, etc., and the use of red lights at night. With reference to our role as a nuisance in the community, due to smoke, odors and waste water, we try to abolish these as much as possible and to co-operate with the city officials in any plan for the disposal of waste water.

From Mr. C. J. Weinmeister, Superintendent of Mains.—This office serves not only customers of record but also prospective ones. The customer of record is generally one about to move his place of residence to a dictrict or street where gas connection is not immediately obtainable. In some cases the customer has moved to the new location and is surprised to learn that gas connection is not obtainable on demand. To properly handle "the inquiry," a personal interview is obtained and all the pertinent facts which have a bearing on the matter of main extension are brought out. The applicant is assured that the gas company wishes to retain his custom, and to that end will extend the mains provided the cost involved is in accordance with a few simple rules which necessarily will govern an investment of this kind. The personal interview is productive of a very thorough understanding of the matter, and if the extension sought is not made,

the customer becomes reconciled to the fact. When an applicant has requested service connection along the line of an existing main, he is assured that his order will be executed with all possible dispatch. Frequently numbers of customers are awaiting a common main extension. One of the interested customers has been acting as "spokesman," and to him we state the approximate time when the extension can be made. In all of the statements made to the waiting customer, every effort is made to present the facts at issue in a truthful manner. We do not make false promises; we would rather execute the work before the date set than delay the work after that date.

Office employees are instructed to give information strictly in accordance with the recorded facts, and in the event that the information sought cannot be positively answered, then the office employee secures the address of the person making inquiry and the question is properly referred and finally answered. In answering a question in this office there must be more than courtesy, there must be embodied in the answer a statement of facts which will at all times reflect absolute integrity, reliability and efficiency.

In recent years the improvement in street paving has received much attention, and, in order to please the public, much care is exercised when excavations are made in paved streets, the paving material is preserved in the best possible manner while the excavating work is in progress, the pipes are laid and tested with care. We must not reopen the street after the paving has been laid. Sidewalks and grass plats are scraped and swept with a broom. Private driveways are respected and the owner of a driveway is consulted as to the best time when excavation can be made in order that he may be inconvenienced as little as possible. Street crossings are kept in a passable condition, and every effort is made to create the impression that the work in hand shall not become a nuisance.

The main gang foremen are instructed to keep the premises about the tool box in an orderly manner, and a general cleaning up of waste paper and other litter is made when the camp is moved. The drip crew is instructed to carefully pump all condensation into the tank wagon, and to wipe up any oil or water which may be spilled on the street or walk, so that the public will not be inconvenienced by the odor or from the effects of coming in contact with the spilled condensation. Drips are pumped according to a prearranged schedule, and the supply of gas is never interfered with on account of flooded drip pots.

Where large sewer extensions are being made, and where our mains are being undermined, we make every effort to demonstrate to our customers that we will endeavor to give them efficient service. In some cases we have laid temporary pipe lines on top of the ground and thus have anticipated the wrecking of the gas main.

On streets where paving is about to be laid and where we have a gas main, the office records of the underground work are reviewed and any changes or repairs which can be anticipated are made. The service gang gives prompt attention to any houses which are being erected along the street, inquiries are made of houses which have no services, orders are taken from the owners of vacant lots for service stubs, and every reasonable effort is made to obviate the future necessity of tearing up the new pavement. This method should please the customer. I know of no other work which seems to so much displease citizens in general as when the paved street is torn up by a gang laying a pipe line. It follows that if we could always lay the main pipe before the street is paved we would not have to displease by opening the street at a later date. This department is constantly looking ahead and anticipating the demands from the various districts for adequate gas supply.

The writer has often availed himself of the opportunity to state to a group of customers that the gas company has been and is perfectly square in all its dealings with the customer, the meters are regularly tested, that the customer can witness the test of his meter at any time free of charge, and that the meter reader does not gain anything by overreading a meter, etc.

From Mr. A. H. Wimberly, Foreman of Shop.—To secure efficiency in the shop department, I employ the best workmen available; that is, men who do good work, are careful, and who have good habits. In the matter of courtesy, I talk to the men and try to show them the importance of courtesy in dealing with our customers.

The employees of the shop are often instructed concerning their appearance. They are told that when they dress in greasy and worn out overalls and clothing, they do not make a good impression on the customer. This matter of neatness among shop employees is a hard problem to control at all times, in as much as the work takes the men into all kinds of dirty and sooty places; but, if allowed, some employees would get unnecessarily careless. The employees are often cautioned to clean up litter after completing work, and through this effort on the part of the employees a favorable impression is often made upon the customer. The inspectors in checking up the work are instructed to make inquiries as to whether this is being done.

The service men, in digging trenches across the street and through the premises of our customers, are instructed almost daily. They are told to leave the lawns in as good condition as they found them. The street cuts are more difficult to control, as we are not allowed by the city to repave our cuts, and they sometimes get in bad condition before the work of paving is done by the city. We have been able to make some very favorable impressions on our customers in relaying lawn cuts. To accomplish this it requires constant effort on my part, as the men doing this work get careless, especially with reference to cleaning up.

The fitters who install meters are instructed to handle same with care, otherwise a favorable or unfavorable impression may be made. If meters are handled roughly the customer may think that they cannot be reliable. Fitters are also instructed to answer all inquiries in a polite manner, and such questions which they may not be able to answer intelligently must be referred to the department that can give information upon matters of which they know nothing. The force as a whole is often cautioned along this line, as it is hard for some men to acknowledge their ignorance.

The fitters who install appliances are instructed to do this work carefully, quickly and neatly, and to test the appliance to see that it is all right and in good working order before leaving; also, to explain its operation to the customer.

When a complaint order is received in the shop the average time in reaching the point of trouble is about 3 hours. The complaint orders are handled largely by men riding motorcycles, who telephone the shop from various parts of the city almost every hour during the day. The fitters who make installations are also required to call the shop before leaving one section of the city for another, in order to take care of any trouble that may be near them. The service men are also required to call the shop after completing each job. This is done for the purpose of taking care of any stopped up services, or other work requiring the attention of a service man.

All leak orders are attended to the same day the order is received. The workmen attending to such orders are required to note extent of leak and make written report of same. When possible, the customer is shown where the leak is and whether or not same registers on the meter. If the leak registers the amount is explained. If the leak cannot be fixed permanently, the workman 'phones shop for instructions.

The maintenance men on arc lamps are instructed to keep lamps clean and bright, and to do this work with the least possible annoyance to the customer. All complaints on arc lamps are handled on the same day the order is received, and without extra charge to the customer.

All orders for the installation of meters and appliances, as a rule, are attended to the following day. There are, however, exceptions. All special orders are handled in the least possible time required after receipt of order.

The harness, wagons and motor trucks are cleaned daily. The mules are kept in excellent condition, and our wagon and trucks are painted once a year.

It requires the constant attention of the foreman, assistant foreman and inspectors to see that instructions are carried out and that all work is properly done. All special complaints are investigated by either myself, assistant foreman or an inspector.

From Mr. Frank Lewis, Collection Department.—My idea as to obtaining the goodwill of our customers is, First: Not to give them cause for becoming offended; and, second, to accommodate them in their requests when we can consistently do so. I represent the collection and credit departments of our company, and in such capacity am constantly thrown in direct contact with the public. It is my aim, and I instruct my assistants, to be at all times and under all circumstances courteous in dealing with our customers, though the nature of our duties sometimes makes this very difficult. Presentation of a bill to a customer is not calculated to draw any thanks from him, but, on the other hand, it often causes the customer to lose his temper and denounce the collector and the company unjustly. It is then that the collector is tempted to reply in the same manner. My instructions to the collectors are to be very careful in what they say on such occasions, and not to consider such as personal insults, but to remember that they represent their company and must do as the company would have them do. That if a customer's request is reasonable to grant it willingly, and if it is unreasonable and cannot be granted to tell him so in a manner that will not offend him. We must realize at all times that we are our customer's servants, that we depend on our customers for business, and that our customers depend on us for service, and that the customer and the company must work together in perfect harmony to get the best results. We must do our part before we can expect the customer to do this. Our part is to furnish good service; his part, to pay for it as agreed.

From Mr. F. C. Davison, Chief Clerk.—Courtesy is what I consider the greatest pleasing factor in dealing with our customers. To be always ready and willing to please and oblige is a motto that is sure to win. When a new customer makes application for gas is the

very best time for us to show our willingness to please and oblige. I find that the impression made upon the customer at the time he starts to do business with the company is in almost every case a lasting one.

After we have shown the customer our good intentions the next step is to see that they are made good. This cannot be done unless we are very careful in making our promises. Our explanations must be made in such a way that the customer will know just what to expect. In some cases, by doing our very best, misunderstandings will occur. When these do occur we are most careful to make a clear and reasonable explanation. It has been my experience that our customers are reasonable if we are reasonable.

After the new customer has become a user of gas we expect, sooner or later, to have him call on us in regard to the service rendered. What I mean by this is, poor pressure at appliances and lighting fixtures, and needed adjustment of appliances. When a customer makes a complaint of this kind we are particular to impress upon him that it is more to the company's interest to have him satisfied with good gas service than it is to have him inconvenienced and annoyed with poor service, and that every effort will be made to have the complaint attended to as quickly as possible. We always try to ascertain the nature of the complaint and to explain its cause. In this way the customer becomes more familiar with the commodity he is using, and when future requests are made, the customer will be better able to make himself understood and will be more reasonable in his requests.

We put forth our best efforts to satisfy customers who complain of excessive gas bills. If the customer makes a complaint, either by 'phone or in person, he is told we will gladly make an investigation. The first thing we do is to put the name and address of the customer on a special investigation card. This goes to the bookkeeping department, where the meter number, last index, and date of last index are put on the card. The card then goes to the chief meter reader who gives it to a special meter reader. The meter reader visits the customer, re-reads the meter, and tests for leaks and finds out if everything is in order. At this time he reports to the customer just what he finds, and in the majority of cases he is able to attend to the complaint satisfactorily. In case he is not able to satisfy the customer, he refers him to the office. These men are instructed to be very careful not to make remarks that will be misleading to the customer. They show the customer how it would be impossible for the meter to register gas unless it passes through the meter. They try to impress on the customer that, if there are no leaks and the meter has been read correctly, the gas has most certainly been used. When the customer asks to have the meter tested, he is referred to the office.

It has been my experience that there is always room for improvement. When mistakes are made we try to profit by them, and some of the best knowledge I have was gained through mistakes, which will happen in the best of regulated families. We are constantly striving to be more courteous and more efficient at every opportunity.

From Mr. C. A. Werber, Purchasing Agent.—Regarding the methods employed in the purchasing department for creating favorable opinion towards the company, I will state that we work with the idea that every salesman who comes into our office is a consumer of gas himself, that his firm is a consumer of gas, or that he has relatives and friends who use gas. I have often heard that in some purchasing departments, salesmen are treated very curtly. They will be told, "I havn't time to talk to you," "I don't want anything you've got," and a great many other short remarks which are uncalled for. We treat every salesman as a gentleman, and find that it pays.

It very often happens that goods which we have purchased are not delivered as promptly as they should be. In case of this kind, we do not "raise sand" or "cuss" the people out on account of the delay, but try to impress upon them as courteously as we can how very necessary it is that the goods be delivered in a hurry.

Every month we find 50 or more errors in invoices (mostly overcharges). These are taken up by 'phone, as far as we can, with the different firms. They are told the date of their invoice, what the invoice covers, and the amount of the error, and are asked in a gentlemanly manner to send us a corrected invoice or a credit memorandum. They are made to feel that we consider it as an error, and not that we think they were trying to "do us."

Drummers who represent out-of-town firms are treated just as courteously as city salesmen. They are entitled to this; and, besides, they may have friends and relatives in the city. If they are treated as people who are trying to make an honest living should be treated, they can and do "put in a good word" for the company sometimes. Again, the firm which they represent may open a branch house in the city at any time and become a consumer of gas.

It also happens very often that a salesman or the head of a firm with whom we do business makes a complaint to some one connected with the purchasing department, because he is better acquainted with us than he is with anyone else connected with the company. In such cases the complaint order is always made at once, and the next time we see the person who complained, we ask if everything has been made satisfactory. We find that by treating everybody just as gentlemanly as we know how, we not only help towards creating a favorable impression, but we actually get better service ourselves.

From Mr. J. C. Rushin, Superintendent of New Business Department.—Too much care cannot be exercised in employing the right kind of people. I try to employ people who have a good disposition, are honest, and who have the company's interest at heart; who are not lazy, and who keep fairly well read on all matters, especially local matters. I keep perfect harmony in my department, and allow no friction whatever between the employees. I try to impress on them to keep out of debt and keep their domestic affairs running as smoothly as possible, for when a person's home surroundings are pleasant things are generally pleasant otherwise. Particularly do I try to impress on them to keep out of debt, as a person who has a lot of collectors running after him each month, unless he has an unusually large amount of nerve, will suffer annoyance, and a harassed person cannot make a very good impression on the public.

I teach all of the gentlemen in my department the importance of keeping their hair combed, faces clean and shaved, shoes shined, clothes pressed, and to be just as neat as possible in their appearance; to be nice and accommodating and courteous, whether they are trying to make a sale, settling an old account, or in fact under any conditions, and in every transaction to try to make a friend of the person with whom they are dealing. They must by all means keep all appointments promptly. I instruct all of my people never to misrepresent a gas appliance of any kind under any condition for any consideration. It is a very easy matter sometimes for a person selling goods to misrepresent them slightly. This is the worst kind of treatment to the consumer and should be avoided. Teach the public when you are doing business with them that they can rely on what you say, and you gain their goodwill.

All of my solicitors are instructed not to ring the door bell two or three times very hard, but to ring it very lightly, as the baby may be asleep, or someone may be sick, and ringing the door bell hard is not a good way to keep the goodwill of the customer. On entering premises they must be sure that their shoes are cleaned off, and they must never strew mud on the steps or front porch or in the house. A lady who has just cleaned off the front porch and has had a salesman track it up with muddy shoes would not be apt to feel kindly towards us. Our representatives must always remove their hats in the presence of women, and when they find people in trouble or distress they must be considerate, never bold or overbearing at any time, always courteous and polite.

In the office I instruct all of my people to answer the telephone the very moment it rings, to be courteous and polite over the 'phone, and when they receive an order of any kind to always ask the customer if there is anything else they can do for him, and to thank him for the order. I try to run my department in such a way that our customers are waited on promptly. I try to teach all of my people to keep well posted on details of the company's business, so that they can talk intelligently on any subject which would be of interest to the public.

The new business department keeps in close touch with the shop department, and we never make promises on the delivery of appliances which the shop department cannot live up to. We always ascertain if an appliance can be deliversd at the desired time before we make any promises. We follow this rule as clcsely as it is possible.

We buy appliances which are best suited for our customers, regardless of prices, or who manufactures them, or where they are manufactured, always having the consumer's interest at heart when appliances are being purchased. This goes a long way towards keeping the goodwill of the people, and keeping down the old saying that the gas company handles appliances which consume the most gas.

We guarantee every appliance that we sell to be just as it is represented, and if we find that we have sold an appliance which does not suit the customer's requirements, we tell him so and change the appliance at the company's expense. This has done more to create a friendly feeling than any other one thing that we do.

We follow up all the appliances that we sell. The industrial gas appliances are maintained by a special industrial appliance maintenance man, who visits each place once a week, reads the meter, tells the customer his gas consumption per week, sees if his appliances are in perfect working condition, keeps them adjusted, and, when repairs are necessary, it is a very easy matter to get the customer's order for the repairs. We thus keep our customers from complaining about the bill and make him feel kindly toward the company. The domestic appliances are inspected after the installation to see that they are installed properly. All new and second-hand range installations are visited by a practical demonstrator, who shows the people how to properly use them.

A few years ago the gas company did not pay sufficient attention to its new consumers. A gas appliance was sold and that was practically the end of it. If it worked, all right; if it didn't, all right. Consequently there were about as many dissatisfied customers as satisfied ones. The cause was sometimes the consumer's ignorance in not knowing what to do, and sometimes it was the company's fault in not installing the appliance properly. This inefficiency we have practically overcome by the system we have of examination by an inspector and demonstrator.

Every salesman is instructed to call back once or twice after a sale of any kind to see if the appliance is working all right and if the consumer is satisfied. This shows the customer that we are interested in him. I don't know of anything that goes farther in having satisfied customers than showing our interest in their behalf. Such treatment goes a long ways towards molding public sentiment in our favor. The longer I am in the gas business the more I see the need of a public corporation catering to the wishes of the people. When they see the public demanding a thing, if it is possible, grant it, and if they cannot grant it they should tell the people why, and the latter will be inclined to meet them half way.

The manager's work in the establishment of goodwill towards his

company might be likened to that of the foreman carpenter, who, while engaged in the actual construction of the building, must at the same time supervise those associated with him and for whose finished work he is responsible. It is his duty to see that gas of prescribed quality is delivered to the customer, and under conditions essential to economic consumption. He must be familiar with the work of each department and know the opportunities there offered for the creation and maintenance of favorable public opinion.

The manager comes in direct contact with the customer principally through letters of complaint of large bills addressed to the company. For years I have studied how best to answer these letters, most of which relate a story of surprising sameness—settling first grievances and demanding explanations.

I don't know how many customers I finally succeed in satisfying, because they seldom answer my letters written in answer to their complaints, but I always ask the customer to communicate with us further if he or she is not entirely satisfied. Sometimes my arguments are answered, which gives me the opportunity to thank the customer and try further to satisfy. I believe I usually succeed, at least I know that the so-called chronic kicker has disappeared, and I have fewer letters of complaint to answer as compared to the number 3 or 4 years ago. The principles outlined in my paper on "Public Policy," which I read before this Association at New Orleans, are the ones I still uphold:

1. Stand back of the gas meter and uphold its good name.

2. Explain that bills must be rendered as agreed, namely, in accordance with meter reading.

I explain to the customer that when we have furnished him with an accurate meter, and have billed him in accordance with meter readings, we have done our part and what we agreed to do. Our method of procedure in dealing with the customer who writes he has been overcharged is as follows:

1. His letter is immediately acknowledged. We tell the customer that it will give us pleasure to make investigation, and as soon as we have the necessary information will again write him. Investigation is then made to see if the meter was overread, any leaks, how gas is used, etc. We show the consumption of gas from the date of last regular meter reading, and explain many details, such for example, how errors in meter reading are automatically corrected, how the customer may satisfy himself in any leaks exist, etc. If we can find no error on our part, our policy is then to place the customer in position to check his own bill. If he does not avail himself of this opportunity, it is his fault and our misfortune. We ask, where is the gas meter? Is it not in your cellar where you have access to it at all times? You can ascertain the amount of gas registered and check our meter reader in his work. Having satisfied yourself as to the correctness of the meter reading, the only other point to be considered, at least as far as our responsibility is concerned, is the condition of the meter as to accuracy. If you believe your meter to be inaccurate, will you make an engagement with me to see it tested? There is no charge for testing the meter if you will be present to witness the test. Kindly read the inclosed circular with reference to meter testing and let us know if we can further serve you.

The circular outlines the conditions under which we test meters upon request of customers. We will test free any meter which has been in service a year or longer. If the meter has not been in as long as 1 year, our charge is $1, if the meter is found to be correct or slow, but if found to be fast the $1 is refunded, together with a rebate on the 3 previous bills rendered, amount determined by the percentage of inaccuracy of the meter. We will test a meter free of charge any day, if the customer will witness the the test and also allow rebate for fast meters. If the meter is slow we stand the loss.

You will note we offer an inducement to the customer to see his meter tested. Quite a number of people from all walks of life have been in to witness the test, and they go away satisfied and making remarks such as, "I'll be a missionary for you." "You people are all right," etc. We wish we could get more of our customers to visit the meter test station, but comparatively few avail themselves of the opportunity.

We must give the customer credit for an honest belief in what appears to him an overcharge. Our efforts to educate must be constant. We recognize this as a part of our business. The man who frets and worries over groundless complaints must have a narrow conception of human nature, and still narrower conception of his duty.

Continuing (the paper having been concluded), Mr. Congdon said: Gentlemen, after writing this paper and receiving the printed copy, it occurred to me that it would be a good idea to send it up to the Railroad Commission of Georgia and ask them for their criticism or discussion, and I believe that their criticism and discussion should be embodied in the proceedings of our Association. The Railroad Commission, as a rule, hears complaints against the gas company, and unless some one tells it what we actually do to try and please our customers, how is the Commission to find out? It isn't very often that we get customers to go around and advertise us by telling people how good we are. It does seem to be a trait of human nature to exhibit the unpleasant things against us; and, to make sure that our Commission knew of our efforts to please the customer, I sent them this paper, and immediately received this reply:

RAILROAD COMMISSION OF GEORGIA,
ATLANTA, April 10th, 1912.

MR. R. C. CONGDON, Manager, Atlanta Gas Light Co., Atlanta, Ga.

DEAR SIR—I have your favor of the 8th, with a copy of a paper you propose to read before the Southern Gas Association, describing the methods of the heads of your different departments in their efforts to please your customers and render efficient service, and note your request that I comment on the same.

I have read this pamphlet with care and much interest, and I have only to say that if you and your heads of departments "practice what you preach," I feel certain that the Atlanta Gas Light Company *will* please its customers and render them that efficient service which they pay for and have a legal and moral right to expect.

To judge from these expressions of your officials, they seem to have a real conception of the duties, and what should be the purpose of a public service corporation.

It is unfortunate that so many officials of such corporations labor under the delusion that they are private individuals, working for private corporations, the object of whose creation and the end of whose existence are only to make money for the stockholders. The real truth is that every service corporation, created by the public, given powers and privileges enjoyed by no natural person, with its property and assets dedicated to public use, is a *public* institution, and its officials and employees are *public officers*.

The public is a co-partner in such a corporation. It has a right to a voice in its administration. The public can no longer "be damned." It will grow unreasonable when it is so treated, for too long.

It is a fact that the public, when not so treated, rarely makes unreasonable demands. I don't mean individuals—of many of them this cannot be said—I mean the public as a mass or body. It wants value, good service, in return for its money and the many valuable privileges conferred by it. It has a right to this. It wants that service rendered politely and willingly, and with a recognition in such rendition that it is only receiving what it has a right to expect, and not that it is being favored by a boss, or as if a gift was being handed to a beggar.

If it has a complaint, it wants it to be received and handled with that fairness and courtesy that any man in private business extends to any valuable customer who may report a bill of merchandise short or damaged. There is no reason under tee sun why a public service corporation should not in time enjoy a good will, every whit as valuable as the good will of the best private business corporation in the State. In fact, it ought to be more certain of being won and far more valuable. Everyone knows the private business firm or corporation is working solely for private gain. This is not the chief end of a public service corporation. It ought to be allowed returns comparable to those enjoyed in honest private business ventures in the same community, and its *first duty* is to render efficient service to the public which created it andwhich not only lets it live but supports its existence. A public service corporation with such an ideal and constant, honest effort to live up to it, is going to render efficient service; it is bound to please the public; it is going to enjoy its good will, and it is not only going to be *allowed* fair returns, it will *earn* them.

The views expressed by your department heads seem to indicate that they have a true appreciation of the duty of a public service corporation to the public, and of the relations with it, which should be cultivated. I congratulate you upon having men of such purposes and ideals in charge of the important public offices they held, and I trust that their efforts to render efficient service and to please the public will continue, and be awarded with success. If so, I feel sure the Atlanta Gas Light Company will also prosper materially, as it ought to do. Your very truly, [Signed] C. M. CANDLER.

(To be Continued.)

Some Cost Figures.

By "MAT."

Cost per Square Yard for Repavement—The question frequently is asked "what is the cost of repavement." The following costs were gathered to answer that question, though in making estimates the total cost per square yard should be raised about 5 per cent., as these costs were gathered when weather, etc., was favorable.

Material.			Cost.
0.153 Cu. yds.	stone	at $1.07	0.164
0.063 " "	sand	at 1.20	0.076
0.166 bbls.	cement	at 1.50	0.249
39 vit.	brick	at 18.00 per M	0.702
Total cost of material			$1.191

Labor.

Nature of.	Cost.
Mixing and placing concrete	0.09
Laying brick	0.05
Grouting	0.10
Tamping brick	0.03
Total cost of labor	$ .27

Hauling Material.

Nature of Material.	Cost.
Hauling Brick	0.09
" Stone	0.061
" Sand	0.019
Total cost of hauling	0.17

Or a total cost for square yard of vitrified brick repavement at $1.63.

The average haul can be figured as 3,000 feet in this case, and for rough estimate the following may be used:

Nature of Road.	Cost per Square Yard.
Macadam, 9 inches deep	$0.38 to $0.45
Granite block	1.35 to 1.60
Asphalt	3.05 to 3.25

CONCRETE FOUNDATIONS: LABOR COST PER CUBIC YARD CONCRETE.

Estimate No. 1.

The following costs of labor are based on machine-mixed concrete, with a machine that is capable of mixing a 12-foot batch, averaging 167 cubic yards per 10-hour day:

Machine	1 Dumper	at 17½ cents per hour	$1.75
	1 Feeder	at 20 " "	2.00
	2 Cementmen	at 17½ " "	3.50
	4 Sand	at 17½ " "	7.00
	14 Rock	at 17½ " "	24.50
	Waterboy		.85
	4 Carts	at 30 cents per hour	12.00
	Engineer	at 20 " "	2.00
	1 Grader	at 20 " "	2.00
	Foreman	at 30 " "	3.90
	Supt. and Clerk		8.00
	Total		$66.10

Dr. 167 yards at .395 cents per cubic yard.

Estimate No. 2.

Based on the same size machine, but with a different distribution of labor and at different rates:

	Three carts, at 30 cents	$9.00
	Engineer, at 25 cents	2.50
	Water boy, at 10 cents	1.00
	Foreman, at 35 cents	3.20
	Total	$16.00
Machine	12 rock, at 17½	
	3 sand, at 17½	
	2 cement, at 17½	
	1 feeder, at 20	39.00
	1 dumper, at 17½	
	1 grader, at 20	
	2 graders, at 17½	$55.00

Or, 176 cubic yards, at .329 cent per cubic yard.

Management & Commercial Methods.

WELFARE WORK: PUBLIC SERVICE CORPORATION OF NEW JERSEY.—[Prepared for the JOURNAL by "WELFARE."]—The relation between the Company and its employees has received considerable attention in the Public Service Corporation of New Jersey. The latest plan which has been in effective operation for nearly 1½ years is an insurance, sick benefit and pension fund. The details of the plan and its operation are given in the latest annual report (1911) as submitted by President T. N. McCarter. We reproduce the following:

Insurance.—A death benefit of $300 shall be paid to the personal representatives or dependents of permanent employees whose compensation at the time of death did not exceed $1,800 per year. This insurance becomes effective, in the beginning, as to all employees who remain continuously in the service up to the time of death. As to employees entering the service after the plan goes into effect, insurance rights are not acquired until the expiration of 1 year, and are then dependent upon continuous employment.

Sick Benefits.—Payment shall be made by the Company to each employee whose compensation does not exceed $1,800 per year, and which is not continued during disability, of $1 per day for each day's illness or accident; payments in any 1 year to any one employee to be limited to $90.

Pension Fund.—Voluntary retirement on pension of all employees who reach the age of 65 years after 25 years of continuous service is provided for, while retirement on pension of employees who reach the age of 70 years after 20 years' continuous service is made compulsory. Pensions shall be fixed on this basis: For each year's service, 1 per cent. of average annual salary for 10 years preceding retirement, but no pension to be less than $240 per year.

It is a pleasure to state that the operation of this fund has worked to advantage, even beyond the greatest expectations. By means of it the Corporation has performed a generous and humane work for its employees, the result of which has been the creation of a better feeling between the Corporation and its employees. It was estimated that the operation of the fund would cost the Corporation $50,000 per year. The actual expenditures for the first year were $48,788.87, distributed as follows:

Insurance	$18,375.89
Sick benefits	22,955.67
Pensions	5,495.65
Expenses	1,961.66
Total	$48,788.87

It is a feeling of genuine satisfaction to the management of the Corporation to know that in this enlightened day it is doing its full duty in alleviating the suffering and providing in a measure for the old age of its employees, and that it is also making its presence felt at the inevitable time of death.

The following is taken from the October 7th issue (1911) (Atlantic City Convention Section, of the *Electric Railway Journal:*

"During the year 1910 the Corporation moved into its capacious new office building, located at Broad and Bank streets, Newark. The building is most admirably located and contains every possible convenience for the employees. A luncheon room has been provided, where luncheons are furnished to some 600 employees of the Corporation, without charge to them. This means a saving of from $1 to $3 per week per employee. There is also a free technical library in this building, which is conducted along much the same lines as the average public circulating library. The reference room is open from 9 A. M. to 5 P. M. week days, and from 9 A. M. to noon on Saturdays. The contents are available for circulation among all properly registered employees who have obtained application cards from the librarian. Another feature of this building is an assembly room which seats about 250 persons. It serves as a smoking room for the employees during their luncheon period, but its principal use is as a meeting center for various employees' associations. There has also been provided in this building a barber shop, manicuring parlor, shoeblack stand and a clothes cleaning and pressing establishment for the benefit of the employees. These services are given at low prices because the concessionaires are not required to pay rent."

Along educational lines, the Corporation pays ½ of the dues of employees who desire to enroll themselves in the National Commercial Gas Association or the National Electric Light association (they number 348 and 205 respectively) and is constantly bringing to the attention of its employees the importance of education and fitting themselves in every way possible for higher positions. There were 104 Public Service Employees enrolled in the N. C. G. A. "Selesmanship Correspondence Course" which was completed last month. The Company Sections of these Associations have meetings alternately at stated intervals, where discussions of up-to-date subjects are carried on, to which all employees are invited. There are no restrictions upon the men expressing their opinions. It is very gratifying to the management to note that the interest has not waned in the slightest, notwithstanding the fact that these meetings have been going on now for a period of over 2 years.

The employees are urged to use the columns of the National Commercial Gas Association's and the National Electric Light Association's Bulletins, with a view to expressing their ideas and becoming experienced in so expressing themselves, and also to encourage their thinking for themselves.

Items of Interest
FROM VARIOUS LOCALITIES.

THE Evens & Howard Firebrick Company, of St. Louis, Mo., must have some artists on its staff, for a Pamphlet-Catalogue, bearing the imprint, "Coal Gas Benches," has just been issued, which is of a verity a beauty. The compilers, however, have, in striving for beauty, not overlooked utility, and the result is a production that appeals to the eye and incites the thinking one to thoroughly peruse its text.

IN the monthly news sheets for June, printed by the Consumers' Gas Company, of Toronto, Canada, there is printed a very readable explanation of "How to Have an Up-to-Date Kitchen," by Mr. John M. Brock.

THE first reasonable step taken by the promoters of the American Graetzin Light Company, since representation was had in this country of the original German concern, is the leasing of the Peerless Building, Bridgeport, Conn., in which premises, as soon as these have been satisfactorily changed over to suit the new purpose, the parts of the Graetzin lamp will be assembled.

WE are in receipt of a copy of the doings of Messrs. J. G. White & Co., of New York and London, for the fiscal year ended February 9th last. Its figures and statements all go to show the success which has crowned and which will hereafter crown the intelligent efforts of those who direct its affairs.

"PERHAPS wholesouled 'Joe' Black, Chief Inspector of the Harrisburgh (Pa.) Gas Company, was not surprised one evening last month when 20 of the operation force of the Company were most delightfully entertained by him in his comfortable home quarters, 912 South 22½ street. His surprise mainly came to him through the realization that there is many a thing in connection with 'bridge' that he has yet to learn.—B. M. V."

MR. THOMAS H. SMITH, President of the Salina (Kas.) Light, Power and Gas Company, and associates, have sold a controlling interest in that corporation to Mr. Guy P. Gannett, of Augusta, Me.; J. F. Springfield and Walter Grundy, of Hutchinson, Kas., and C. E. Ruehl. Mr. Smith retains a sensible interest in the concern, and the parties above named are to serve as Directors. Mr. Gannett has been

chosen President, and he proposes to make many important additions to the existing plant. There will be no change in the working force of the Company.

MR. W. P. PIERSON, of the Charlotte (N. C.) Gas and Electric Company, is temporarily in Greenville, S. C., where he is conducting a campaign on new business account, similarly constituted to lines of the one so successfully brought off by him in Charlotte.

THE Common Council of Hackettstown, N. J., is considering a petition the presenters of which are applying for a franchise to there operate a gas plant. They ask that the grant be for a term of 50 years, and declare that if the Council assents a plant will be erected that will be ready for operation in September next. The Hackettstown capitalists concerned in the venture are Messrs. C. V. S. Rea, E. R. Hueber, W. A. Hoffman, R. H. Richards, M. R. Bowers, T. G. Plate, Jr., Jno. M. Sanders and Wm. Lanterman. This list contains the names of men who usually succeed in obtaining that for which they ask.

THE sale of the properties of the Hamilton (O.) Gas Company, which were to have been sold at auction the 28th ult., has been put over to the 9th prox.

VOTERS of Marshalltown, Ia., at an election held the 29th ult., to determine whether or not public ultility franchises for the operation of the gas, electric and tramway car systems of that city, should be granted to Messrs. Wm. Dows, J. B. Smith, John A. Reed and R. S. Cook (all of Cedar Rapids, Ia.), voted in the ratio of 6 to 1 in the affirmative. This, too, happened in the face of a two-third vote of all those entitled to vote in the city.

THE proposition to investigate the conditions surrounding the gas supply of Milford, Mass., for which a special fund of $500 was appropriated, has been halted. Superintendent Leonard seems to have "shown why" the gas supply of Milford, under existing conditions, is anything other than a gold mine.

SUPT. MORRISON, whose management of the Brockton (Mass.) Gas Light Company's trading is of the untiring sort, gave a very successful week's demonstration of how gas can be utilized in the kitchen for the benefit of the residents of the districts of Holbrook, Randolph and Avon, which outlying settlements were recently hooked up by means of a high pressure 6-inch line of steel pipe from the main station at Brockton. The exhibition was made in the Knight of Pythias Hall in Randolph, the demonstratress being Miss Jessie Loveridge, graduate of the Boston Cooking School. The attendance was great in number and enthusiastic in appreciation, and the interest was further heightened by the giving away of souvenirs, and the setting forth of an excellent lunch.

THE high pressure system at Brockton is one of the largest in New England. It run from Brockton through Holbrook, Randolph and Avon, and returns to Holbrook at Burkville, thus securing continuous circulation. The line is 30 miles in length, thus laid in as to diameter: Thirty miles of 6-inch; seven of 4-inch; six of 3-inch; four of 2-inch. The pressure carried is 20 pounds, and so far 20 miles of service pipes have been hooked to it.

MR. MORRISON proposes, however, to go on with the extending of this line to East Bridgewater, Bridgewater and West Bridgewater, and when this is all down the system will figure at least 50 miles.

THE Fayetteville (N. C.) Gas and Electric Company has sold its properties to a concern which will hereafter operate them under the title of the Fayetteville Light and Power Company. Its capital stock has been adjusted at $150,000, and prominent in ownership thereof are Messrs. W. W. Randolph, John Bucklin and Thomas Badger. The latter named will manage the business of the succeeding corporation—he was the Manager of it predecessor.

THE White-Way installation, for the better enlightenment of the residents of Valley City, N. D., will be carried on posts furnished by the Western Gas Construction Company, of Fort Wayne, Ind.

A SPECIAL from Elwood, Ind., dated May 29th, says that the property of the local gas plant was transferred to the Dawes syndicate the 1st inst., and the direction thereof will be in the Muncie, office. Mr. D. S. Milne, of Ottumwa, Ia., will be prominent in its management, and Mr. Bert Carpenter will also be retained in another division.

MR. W. F. LUCAS, of Santa Rosa, Cal., has been appointed to a responsible position on the accounting staff of the Petaluma branch of the Pacific Gas and Electric Company, by Manager Weber. The latter reports an increase in output for the past 6 months, as compared with that for the corresponding half of 1911, amounting to 18 per cent.

THE Joint Gas Committee of City Councils, Wheeling, W. Va., in conjunction with the Board of Control, considered the report of the latter in respect of its examination respecting quantities of gas manufactured, cost to manufacture, quantities lost by leakage, and the profits to city on the operation of the plant. The figures submitted were most interesting, if not surprising, in that they showed an output, from December 1, 1911, to April 30, 1912, of 48,399,000 cubic feet, of which quantity 18,632,300 (38 per cent.) cubic feet was unaccounted for. The severe winter weather of 1912 was undoubtedly the cause of this tremendous loss, for the expenditure on main and service repair account was five times more than the costs for like period a twelvemonth ago. Superintendent Miller advised a complete going over the mains and services. The Wheeling Traction Company was also chargeable with causing much gas leakage, as shown by the pitting in pipes near to its power plant on the South Side. The Joint Committee recommended that the offer of the Natural Gas Company, of West Virginia, to operate the plant on ordinary commercial account be rejected, and such recommendation was endorsed.

MR. WILLIAM H. SNOW, who for years so successfully managed the gas and electric plants of Holyoke, Mass. (these are operated on municipal account) has handed in his resignation, the same to become effective the 15th inst., or (if Mayor White prefers) June 30th. Mr. Snow would like to be relieved on the 15th, as he goes to take charge of the management of the New Bedford (Mass.) Gas and Edison Light Company, July Ist. Mayor White, on the receipt of Mr. Snow's laconic resignation (the text thereof was this: "I hereby resign my position as Manager of the gas and electric department") set out to discover why Mr. Snow was changing his business relations, and virtually this was Mr. Snow's reply: "Not only am I improving myself financially, but I think it is better to work for a private concern rather than be employed in the public service; but this is in no sense meant as a criticism." The Holyoke estimate of Mr. Snow's worth was $4,000 per annum, and no attention was paid to a request of his some time ago that an increase therein be made. On the 31st May Mr. Snow finished 37 years' service in the Holyoke Water Power Company. When the transfer of the gas and electric plants from the Water Power Company to the city was concluded, Mr. Snow was appointed General Manager. The new department was inaugurated December 15, 1902, from which time Mr. Snow's connection with the municipality dates. In the last 9 years great improvements have been effected in the lighting department, and now the gas works are being enlarged so that not only may the output be increased, but to bring to hand the 80 cent gas rate so long desired. One familiar with the old lighting plants, and not having seen them since they became the property of the city, would not recognize them as now constructed, so complete has been the transformation. Manager Snow, by his activity in planning and directing, has not only enhanced his own splendid record as a lighting expert, but has brought the gas and electric departments of Holyoke to a high rank, comparing those with the averaging of others in the State. When the authorities took charge of the electric station (December 15, 1902) the customers numbered 273; they now number 2,000; the Holyoke Water Power Company when it had the plant had 44 meters on the lines; now there are 1,800 *in situ;* 8 transformers were in service then, now they number 278, the wire mileage then was 72, now it numbers 200; the street lights were 263; now they number 600. Take it all-in-all, Mr. Snow has more than made good the prediction regarding him by one of New England's foremost gas engineers, something over 20 years age. The occasion was a meeting of the New England Association of Gas Engineers. Mr. Snow had just made a contribution to the discussion on a paper on carbonizing, and as he sat down, the well-known engineer referred to (to be plain over it, the Engineer was the late Joseph Russell Thomas) addressing the gentleman sitting on his right said: "There's a young fellow who is going to make his mark." That he will gain added business and personal laurels in New Bedford may be taken for granted.

MR. W. A. ALDRICH, writing to us from Monterrey, Mexico, under date of the 30th May, at which point he is engaged in constructing a gas plant for the Monterrey Railway, Light and Power Company, says: "* * * In your issue for May 20th, it is stated that the writer is constructing a high pressure gas distribution system, 'Universal' jointed mains being used. Your information is incorrect. We are using steel line pipe, with recessed threads and couplings, with Dresser couplings, at short intervals, in order to take care of expansion and contraction. The city is honeycombed with street car rails, and the system will form loops, thus avoiding dead ends. Also, it will be bonded to the rails, especially in the vicinity of the power house, which will probably reduce the danger of electrolysis to a minimum."

The Market for Gas Securities.

Consolidated managed to transform itself, so far as quotations by a single step—that is, it gained a point during the weeks' trading. It came in this morning at 142, bid; holders asked an eighth higher. There was very little trading in it since time of last reporting. The Company meanwhile improves its position with the passing each day.

Brooklyn Union is 143 to 144, and it is said by men who should know, that the Company and the Public Service Commission for the District will have a conference early in the fall, which will enable the Company to properly capitalize some of its subsidiaries. In out-of-town shares the star is Chicago, which certainly is feeling the effect of sensible management in and from its executive head. Lacledes are steady; and a like remark applies to the rest of the list.

Gas Stocks.

Quotations by George W. Close, Broker and Dealer in Gas Stocks.

115 BROADWAY, NEW YORK CITY.

JUNE 10.

☞ All communications will receive particular attention.

☞ The following quotations are based on the par value of $100 per share:

N. Y. City Companies.	*Capital.*	*Par.*	*Bid.*	*Asked*
Consolidated Gas Co.	$78,177,000	100	142	142¾
Central Union Gas Co.—				
1st 5's, due 1972, J. & J.	3,000,000	1,000	103	105
Equitable Gas Light Co.—				
Con. 5's, due 1932, M. & S.	1,000,000	1,000	105	106
Mutual Gas Co.	3,500,000	100	165	175
New Amsterdam Gas Co.—				
1st Con. 5's, due 1948, J. & J.	11,000,000	1,000	101	102½
New York & Richmond Gas				
Co. (Staten Island)	1,500,000	100	35	50
1st Mtg. Gold Bds. 5 p. ct.	1,500,000	—	98½	100½
New York and East River—				
1st 5's, due 1944, J. & J.	3,500,000	1,000	103	105
Con. 5's, due 1945, J. & J.	1,500,000	—	95	100
Northern Union—				
1st 5's, due 1927, J. & J.	1,250,000	1,000	100	109
Standard	5,000,000	100	60	70
Preferred	5,000,000	100	90	100
1st Mtg. 5's, due 1930, M. & N.	1,500,000	1,000	103	105
The Brooklyn Union	15,000,000	1,000	143	144
1st Con. 5's, due 1948, M. & N.	15,000,000	—	106¾	107
Yonkers	299,650	500	120	—
Out-of-Town Companies.				
Bay State	50,000,000	50	½	⅝
" Income Bonds	2,000,000	1,000	—	75
Binghampton Gas Works	450,000	100	—	—
" 1st Mtg. 5's	500,000	1,000	97	100
Boston United Gas Co.—				
1st Series S. F. Trust	7,000,000	1,000	82	85
2d " " "	3,000,000	1,000	47½	50
Buffalo City Gas Co.	5,500,000	100	5	8
Bonds, 5's	5,250,000	1,000	59	60
Capital, Sacramento	500,000	50	—	85
Bonds (6's)	150,000	1,000	—	—
Chicago Gas Co. Guaranteed				
Gold Bonds	7,660,000	1,000	104	106¼
Cincinnati Gas and Electric				
Co.	29,500,000	100	87	90
Columbus (O.) Gas Co., 1st				
Mortgage Bonds	1,500,000	1,000	96	98
Columbus (O.) Gas Lt. &				
Heating Co.	1,682,750	100	90½	91
Preferred	3,026,500	100	75½	80
Consumers, Toronto	2,000,000	50	200	204
Consolidated, Baltimore	13,460,084		—	—
Mortgages, 5's	3,400,000		—	—
General Mortgage 4½	10,661,000		—	—
Con. Gas Co., Baltimore				
City, 4½	2,751,000		—	—
Consolidated Gas Co. of N. J.	1,000,000	100	15	—
Con. Mtg. 5's	976,000	1,000	94	96
Bonds	75,000	—	—	100
Detroit City Gas Co.	6,580,000	—	—	50
Detroit Gas Co., 5's	381,000	1,000	75	80
" Prior Lien 5's	5,619,000	1,000	97	100½
Equitable Gas & Fuel Co.,				
Chicago, Bonds	2,000,000	1,000	—	101
Essex and Hudson Gas Co.	6,500,000	—	133	136
Fort Wayne	2,000,000	—	—	—
" Bonds	2,000,000	—	55	—
Grand Rapids Gas Light Co.,				
1st Mtg. 5's	1,350,000	1,000	100	101
Hartford	750,000	25	190	200
Hudson County Gas Co., of				
New Jersey	10,500,000	—	130	133
" Bonds, 5's	10,500,000	—	104	106
Indianapolis	2,000,000	—	—	38
" Bonds, 5's	2,650,000	—	104½	105
Jackson Gas Co.	250,000	50	32	—
" 1st Mtg. 5's	290,000	1,000	91	95
Kansas City Gas Light Co.,				
of Missouri	5,000,000	100	—	86
Bonds, 1st 5's	3,822,000	1,000	99	102
Laclede Gas Co., St. Louis.	10,000,000	100	105½	106¼
Preferred	2,500,000	100	114	120
Bonds	10,000,000	1,000	102½	103
Lafayette Gas Co., Ind.	1,000,000	100	—	60
Bonds	1,000,000	1,000	60	65
Louisville	2,570,000	50	143	145
Madison Gas and Electric Co.				
" 1st Mtg. 6's	400,000	1,000	106	108¾
Massachusetts Gas Companies, of Boston	25,000,000	100	91	91¼
Preferred	25,000,000	100	94½	94¾
Montreal Gas Co., Canada	9,000,000	100	208	210
Nashville Gas Light Co.	1,000,000	100	110	—
Newark, N. J., Con. Gas Co.	6,000,000	—	97	98
Bonds, 6's	6,000,000	—	127	128
New Haven Gas Co.	5,000,000	25	188	190
Peoples Gas Lt. & Coke Co.,				
Chicago	25,000,000	100	115¾	116
1st Mortgage	20,100,000	1,000	102	102½
2d "	2,500,000	1,000	104	—
Rochester Gas & Electric Co.	2,150,000	50	88	—
Preferred	2,150,000	50	118	—
Consolidated 5's	2,000,000	—	104¾	105½
Pacific Gas and Electric Co.	15,500,000	—	67	68
St. Joseph Gas Co.—				
1st Mtg. 5's	1,000,000	1,000	94	98
St. Paul Gas Light Co.	2,500,000	100	—	—
1st Mortgages, 6's	650,000	1,000	104	105
Extension, 6's	600,000	1,000	112½	115
General Mortgage, 5's	3,447,000	1,000	94	96
Syracuse Gas Co., N. Y.	1,975,000	100	50	55
Bonds	2,047,000	1,000	101	103
Washington (D. C.) Gas Co.	1,000,000	200	450	460
1st Mortgage, 6's	600,000	—	—	—
Western Gas Co., Milwaukee	4,000,000	—	—	—
Wilmington (Del.) Gas Co.	600,000	50	—	—

MEETING TIMES OF THE VARIOUS GAS ASSOCIATIONS.

American Gas Institute.—Annual meeting, October 16 to 18, 1912. Marlborough-Blenheim Hotel, Atlantic City, N. J. Officers: President, Ira C. Copley, Aurora, Ills. Secretary, Geo. G. Ramsdell, 29 West 39th st., N. Y. City.

Canadian Gas Association.—Annual meeting and Gas Show, Toronto, Aug. 26th to Sept. 7, 1912. Officers: President, Arthur Hewitt, Toronto, Ont.; Secretary and Treasurer, John Keillor, Hamilton, Ont.

Empire State Gas and Electric Association.—Annual meeting, New York City, Oct. 1912. Officers: President, R. M. Searle, Rochester, N. Y.; Secretary, C. H. B. Chapin, 29 W. 39th street, New York City.

Gas Meters.—Monthly meetings. Chairman, Will W. Barnes; Commissioners, W. H. Pettes, I. W. Peffly; Secretary, H. Thurston Owens, 42 Pine street, New York City.

Guild of Gas Managers of New England.—Annual meeting, March, 1913. Young's Hotel, Boston; monthly meeting, second Saturday. Officers: President, Walter G. Africa, Manchester, N. H.; Secretary, H. K. Morrison, Brockton, Mass.

Illinois Gas Association.—Annual meeting, March 19th and 20th, 1913. Chicago, Ills. Officers: President, H. O. Channon, Quincy, Ills.; Secretary-Treasurer, Horace H. Clark, 115 No. Oak Park avenue, Oak Park, Ills.

Illuminating Engineering Society.—Annual meeting, Niagara Falls, Canada, Sept. — 1912. Meetings of Sections, monthly. Pres't, V. R. Lansingh, New York City; Secretary, Preston S. Millar, 29 W. 39th street, N. Y. City. Sections: New York, Secretary, C. L. Law, 245 West 42d street. New England, Secretary, H. C. Jones, 10 High street, Boston, Mass. Philadelphia, Secretary, L. B. Eichengreen, Broad and Arch streets. Chicago, Secretary, T. E. Aldrich, 235 Jackson Boulevard.

Indiana Gas Association.—Annual meeting, March, 1913, Indianapolis. Officers: President, Howard L. Olds, Indianapolis; Vice-President, Wm. Wallace, Lafayette; Secretary-Treasurer, Phimer Eves, Indianapolis.

Iowa District Gas Association.—Annual meeting, Burlington, Ia., May, 1913; Officers: President, C. W. Fair, Atlantic, Ia.; Secretary, G. 1. Vincent, Des Moines, Ia.

Kansas Gas, Water and Electric Light Association.—Annual meeting, October 17-19. Manhattan, Kas. Officers: President, B. F. Eyer, Manhattan, Kas.; Secretary and Treasurer, J. D. Nicholson, Newton, Kas.

Michigan Gas Association—Annual meeting, September 4-6, 1912; Toronto, Canada. Officers: President, F. W. Blowers, Kalamazoo, Mich; Secretary-Treasurer, Glenn R. Chamberlain, Grand Rapids, Mich.

Missouri Electric Light, Gas, Water Works and Street Railway Association.—Annual meeting, April, 1913; Joplin, Mo. Officers: President, P. A. Bertrand, Joplin, Mo.; Secretary and Treasurer, P. W. Markham, Brookfield, Mo.

National Commercial Gas Association.—Annual meeting and Gas Show, Dec. 2-5, 1912. Atlanta, Ga. Officers: President, C. L. Holman, St. Louis, Mo.; Secretary, Louis Stotz, 29 West 39th street, New York City.

Natural Gas Association.—Annual meeting, Cleveland, O., May, 1913; Officers: President, M. B. Daly, Cleveland, O; Secretary, T. C. Jones, Delaware, O.

New England Gas Association.—Annual meeting, February, ——— 1913. Boston. Officers: President, D. D Barnum, Worcester, Mass.; Secretary-Treasurer, N. W. Gifford, East Boston, Mass.

New Jersey State Gas Association.—Summer Meeting. August 24, Atlantic City, N. J.—President, William H. Pettes, Newark, N. J.; Secretary-Treasurer, Arthur H. Osborn Belmar, N. J.

Ohio Gas Association.—Annual meeting, February ———, 1913, Columbus, O.; President, John M. Garard, Columbus, O.; Secretary, L. B. Denning, Columbus, O.

Oklahoma Gas, Electric and Railway Association.—Annual meeting, May, 1913. President, Noel R. Gascho, Alva, Okla.; Secretary, H. V. Bozell, Norman, Okla.

Pacific Coast Gas Association.—Annual meeting, San Diego, Cal., September 17, 18, 19, 1912. Officers: President, W. Baurhyte, Los Angeles, Cal.; Vice President, Henry E. Adams, Stockton, Cal.; Secretary-Treasurer, John A. Britton, 445 Sutter street, San Francisco, Cal.

Pennsylvania Gas Association.—Annual meeting, York, Pa., April, 1913; Officers, President, H. H. Ganser, Norristown, Pa.; Secretary-Treasurer, W. O. Lamson, Jr., West Chester, Pa.

Society of Gas Lighting.—Annual meeting Dec., 13, 1912: monthly meetings, second Thursday. Place, New York City. Officers: President, Fred. S. Benson; Secretary, George G. Ramsdell, 29 West 39th street, New York city

Southern Gas Association.—Annual meeting, April ——— 1913, Charlotte, N. C. Officers: President, C. E. White, Montgomery, Ala.; Secretary-Treasurer, E. D. Brewer, Atlanta, Ga.

Southwestern Electrical and Gas Association.—Annual meeting. April——— 1913, Galveston, Tex. Officers: President, F. M. Lege, Jr., Galveston, Tex.; Secretary, H. S Cooper, Galveston, Tex.

Wisconsin Gas Association.—Annual meeting, May ——— 1913, Milwaukee, Wis. Officers: President, I. F. Wortendyke, Janesville, Wis.; Secretary-Treasurer, Henry Harmon, Milwaukee, Wis.